TRADE PUBLICATIONS.

A second edition of the lecture by Walter B. Snow on "The Influence of Mechanical Draft Upon the Ultimate Efficiency of Steam Boilers" has just been issued by the B. F. Sturtevant Co., Jamaica Plain, Mass., by whom copies will be sent upon application.

"What Graduates Say" is the title of a four-page folder issued by the American School of Correspondence, Boston, Mass. The text comprises a dozen and a half or more testimonials from engineers and electricians who have been educated in this school by means of correspondence. The letters show that their writers have been benefited by the training and have secured better positions because of the training.

A folder is issued by Patterson, Gottfried & Hunter, 146 Centre street, New York city, describing several of the specialties handled by this firm. As the circular is unfolded a portrait of a salesman opens opposite each page, showing half a dozen different expressions, from extreme mirth to a condition of disgust. Among the specialties illustrated are pumps, engine lathes, screws, boring tools and grinding machines.

Users of blowers will be interested in the catalogue issued by E. P. Reichhelm & Co., 23 John street, N. Y., describing the Reichhelm high pressure blower. The points claimed for this blower are that it delivers a steady and continuous air blast of great volume on a pressure of from one-half to two lbs. and is practically noiseless in operation, and requires small power to operate it. The construction of the blower is fully shown in several illustrations.

Gas furnaces and forges for heating rivets and for other purposes are described and illustrated with much thoroughness in a large and very complete catalogue issued by the American Gas Furnace Company, 23 John street, New York. These forges are made in all sizes and are adapted to all the uses of the ordinary forge. Several of them are especially designed for shipyard uses, such, for instance, as the rivet heater, which is particularly useful where riveting is done by machinery, and where it is advisable to keep the rivets at a uniform heat.

Barrow and Truck catalogue, No. 8, issued by the Syracuse Chilled Plow Co., Syracuse, N. Y., comprises some fifty pages of the specialties of this company. The pages are very fully illustrated. The barrows described and depicted are of both wood and steel, and include the various types that would be used for handling coal, ashes, etc., on board ship and on wharves. A complete line of trucks is also shown, including the various sizes and types that would be used on wharves, in warehouses and on board ship for handling cargoes. The catalogue is very neatly printed.

Users of lubricators will want to send for the useful little catalogue issued by the National Lubricator Co., 258 North Pearl street, Albany, N. Y. The construction and operation of this lubricator is fully described in this catalogue. Unusual economy is claimed, as the flow can be readily regulated, and the device works only when the machinery is in operation, and then in proportion to the speed. It can be used on main engines, steam pumps and in any other position where lubrication is desired. The several forms of lubricators are illustrated in the catalogue, copies of which can be had upon application.

Fine tools manufactured by the L. S. Starrett Co., Athol, Mass., have a very complete catalogue devoted to them, which has just been issued as catalogue No. 16. It comprises over one hundred pages, and is very neatly printed, each tool being illustrated and described as completely as is necessary. An index adds much to the completeness of the catalogue. All kinds of fine tools are shown, such as bevels, calipers, nippers, gauges of many kinds, micrometers, rules, squares, etc. Several of the tools have been made and designed since the previous catalogue was issued, and have been added to this catalogue. A special feature is that rules and gauges having graduations may be had in the metric as well as standard measure. The catalogue is one that every engineer and mechanical man will want to have for reference.

Ship builders, boiler makers and tank builders have a catalogue published in their interests by the Smooth-On Mfg. Co., 547 Communipaw avenue, Jersey City, N. J. The pamphlet comprises eight pages and cover, and gives a full description of this compound. As described, it is an iron compound, prepared in power form and applied by mixing with water to the consistency of a very stiff putty. It hardens in a few hours. When it hardens it is the color of iron, and it can be used on all permanent joints, main stay-braces, screw stay-nuts, and in all repairs, such as applying temporary patches. It is always ready for use, is easy mixed and when protected from dampness will retain its strength. The special feature claimed for Smooth-On is that it expands and contracts the same as iron, thus making it valuable for stopping a hole in a steam or water pipe or for stopping leaky screw thread joints. Copies of the catalogue and other information can be had from the manufacturer.

"The Marine Engineers' Year Book" is a volume 6 by 9 in. in size issued by the Consolidated Marine Engineers' Beneficial Association, No. 33, with headquarters at Marine Engineers' Hall, 283 Hudson street, New York. The volume is bound in board, with cloth, and comprises more than 250 pages. There is much matter which will interest every engineer, the reading matter being of an educational nature. Much attention is given to the boiler room, not only in describing boilers themselves, but explaining the method of testing boilers, together with articles regarding valves, feed-water evaporators and many other similar subjects. In the same way the steam engine and engine room are described, and several pages are devoted to indicator cards and horse power. Propellers and thrust bearings have several pages devoted to them. Many pages are devoted to electricity and its uses as concerns marine work. The Marine Engineers' Association as an association is referred to, and the local association has a history of it given and a directory of its members. Altogether the book is most creditable to the association. Every member in good standing is entitled to a copy of this book without charge. Extra copies may be obtained from Henry B. Lister at the association headquarters for $2. The book was published under the supervision of Mr. Lister, who spent many years at sea, but who is now practicing law at No. 71 Broadway, N. Y.

BUSINESS NOTES.

LORD'S BOILER COMPOUND.—Owing to the increase in his business, George W. Lord has been compelled to move into much larger quarters than those formerly occupied by him on Union street, Philadelphia, and has taken a building three stories high at 2238 to 2250 on North Ninth street. With his new facilities Mr. Lord is prepared to supply orders of any size from this time on.

A COMPLETE YACHT SUPPLY STORE.—Charles D. Durkee & Co. have erected a very complete building, six stories high, with cellar, at 2 and 3 South street, New York, where they open the new year with a complete line of yachting supplies of all kinds and many ship chandlery goods. The building has a width of 40 ft. and is 110 ft. deep, making the store probably the most ample one in the line in the country. The cellar will be used for anchors, cordage and such heavy goods, and the first and second floors will be devoted to supplies of all kinds. To give some idea of the completeness of the arrangements for doing business promptly and for carrying supplies of every kind, it is interesting to note that on the left-hand side of the store there have been built 2,300 boxes and drawers, varying in size from 2 by 4 in. to 12 in. square. The offices will be in this department. The top floor has been made into a sail loft, and gives ample proportions for this work. The floor immediately underneath will be the rigging loft, which will be in charge of John F. Byno, who has been known so many years in New York in the rigging business. It is the intention of the firm to carry in stock everything that can be asked for in the line of yacht and boat hardware and fittings, and contracts will be made to take complete charge of furnishing everything for yachts and boats.

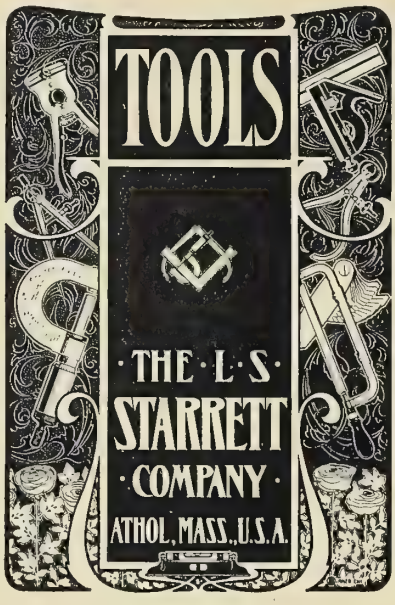
OPENING FOR MARINE REPAIR WORK.—The Brooklyn Wharf & Warehouse Co., 68 Broad street, New York, offers special facilities for establishing a dry dock, repair shop or shipbuilding plant in New York Harbor.

NEW AIR COMPRESSOR COMPANY.—The New York Air Compressor Co. was recently organized with a capital stock of $100,000, with headquarters at 120 Liberty street, New York. The company has secured a complete plant and machine shops at Arlington, N. J., which are being thoroughly equipped with all the tools necessary to build air-compressing machinery of all kinds. The president of the company is J. W. Duntley, well known in connection with the Chicago Pneumatic Tool Co., and the secretary and treasurer is W. P. Pressinger, who has been connected with the trade for many years in New York.

BULLOCK ELECTRIC APPARATUS.—When the Bullock Electric Mfg. Co. moved into its new plant in the suburbs of Cincinnati, O., a year or so ago, it supposed that it had ample space for a long time to come. So great has been the increase of business, however, that it has been compelled to extend the main building 200 ft. The addition will make the main machine shop 500 ft. long by 101 ft. wide. The best month's business in the history of the company has just closed. Fifty-one machines were sold, several of them being repeat orders, and coming not only from all parts of the United States, but from several foreign countries.

BALL-BEARING SHEAVE WHEELS.—The increased prosperity in all lines of business is strongly felt by the Pennsylvania Block Co., 2049 North Second street, Philadelphia, Pa. This company recently moved into much larger quarters, but has already found it necessary to put in considerable new machinery to meet the increased demand for the Parkin Ball-Bearing Sheave Wheels. The amount of business is reported as double what it was two or three months ago. These wheels have already proved their quality for ship and yacht work, and larger sizes have been made apparently with equal results. One of the recent and most interesting orders comes from three large steel mills for bushings to be used on 6 in. and 8 in. shafts with four rows of 4 in. high test steel balls. The company also has orders to prepare full equipments for two shipyards as soon as the goods can be manufactured.

UPHOLSTERY AND NAPERY SUPPLIES.—The business of M. W. Fogg has so outgrown the present quarters, at 18 Fulton street and 195 Front street, New York, that much larger quarters have been taken at 20 Fulton street, corner of Front street, and by February 1 the business will be moved into these new quarters. In this connection it is interesting to note that this business of supplying everything in the line of cushions, bedding and upholstery for steamships and yachts has been within 300 ft. of this corner for fifty-eight years. The business has grown so that it now covers everything in the line of mattresses, pillows, pillow covers, sheets, blankets and everything in the line of complete berth fittings, cushions of all kinds, carpets, rugs, curtains, towels, deck chairs and all other such furnishings. Mr. Fogg has orders on hand for complete furnishings in his line for several coastwise steamers and a number of yachts.



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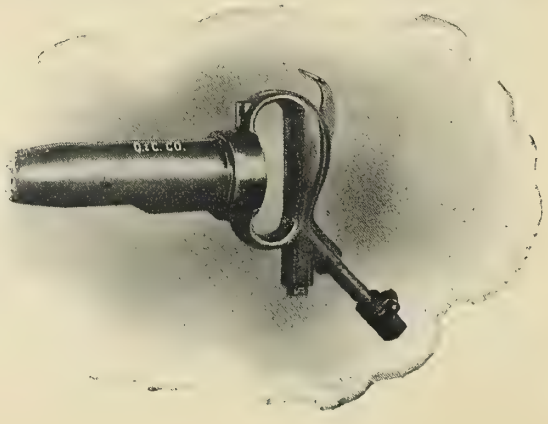

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to control or reduce steam, water or air pressures.

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Valves have had a world-wide reputation for years.

Write for prices.

THE MASON REGULATOR CO.,
BOSTON, MASS.

A Book for Engineers.—A handy vest-pocket reference book containing, in addition to much valuable information, several hundred questions on engineering, and is sent to all engineers by the American Injector Co., Detroit, Mich., by mentioning Marine Engineering.

Feed Water Filter.—The Ross Valve Co., Troy, N. Y., reports numerous letters from users of its feed water filter, which is used on many of the transatlantic lines. Many engineers report making long trips, consuming a month or more, without the necessity of changing the filtering cloth, merely washing it by reversing the flow. Pamphlets regarding these are sent to all who are interested. One of the claims made for the filter is that it takes all the sediment out of the feed water.

Busy Tool Makers.—Charles H. Besly & Co., 10 and 12 North Canal street, Chicago, Ill., report their December business as unusually brisk. At their factory, Beloit, Wis., they have just added new boilers and engines supplementary to water power, and are working sixteen hours four days a week, the balance ten hours per day. They are receiving numerous orders for their helmet bronze in sheet for flat springs and in wire for round springs. They carry an immense stock of this material in stock at their Chicago store, and, therefore, are prepared to make immediate shipments. Owing to the many advances in raw material there have been a number of changes in prices in standard machinists' tools and supplies, and Besly & Co. suggest that orders be placed at once.

A Busy Year.—The B. F. Sturtevant Co., Boston, Mass., reports an increase of nearly 40 per cent in the volume of its business for 1899 over that of the previous year. The shipments, both foreign and domestic, included fan blowers for all purposes, heating, ventilating, drying and mechanical draft apparatus, engines, electrical apparatus, etc. During the past year an addition covering 20,000 square ft. has been made for the use of the electrical department, which has shown the most rapid growth, the output having more than doubled during the year, and covering principally electric fans and special generating sets. The sale of mechanical draft apparatus has been practically quadrupled, while the output of engines has increased one-third over that of the preceding year, and has included many special designs.

The Fore River Engine Works.—The Boston *Globe* of November 30 had a very interesting illustrated article regarding the Fore River Engine Works, Weymouth, Mass. A history of the company is given, beginning back fifteen years ago, when it built marine engines in a very small way. Under the management of F. O. Wellington the plant has been steadily increasing in size, until now 350 men are employed. The company owns sixty-eight acres or so of land and a large amount of water front convenient to Quincy Bay, adjacent to Boston Harbor. This company has made a great reputation among yachtsmen for its engines and hulls, and during the past year has established a large plant for building steel hulls. In addition to a large amount of yachting work, the company has on hand two torpedo boat destroyers, an order for a light ship and for the cruiser *Des Moines*. A large addition 300 ft. long will be made to the plant at once.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON.

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

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Which does not Weep under heavy pressure.

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A record hitherto unreached has been established.

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is one of the largest consumers of paint in the world. Economy of material and increased wear mean to it thousands of dollars annually.

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Free to any address, Our Practical Pamphlets: "THE PAINT QUESTION," "PAINTS IN ARCHITECTURE."

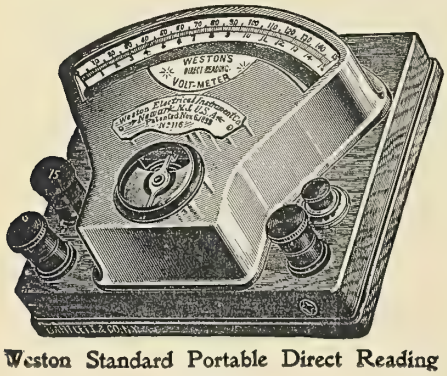
71 Broadway, NEW YORK.

PNEUMATIC HAMMERS.—The Q. & C. Co., Western Union Building, Chicago, and 106 Liberty street, New York, calls special attention to its pneumatic hammer, which is valveless, and which has many features quite different from the ordinary hammer. These hammers are by no means new on the market, having been in use for some time, and having already established their efficiency and good qualities.

THE ROW TUBE.—A patented tube which will interest engineers very much is just being put on the market by the Heat Transmission Co., Danbury, Ct. It consists of an ordinary circular tube which is indented in a regular manner, the identation having a curved section. The purpose of this is to break up the water coming in contact with the tube and preventing scale from forming as rapidly as in other tubes. The claim is made that because of the indentations the efficiency of the tube is doubled and that it becomes more elastic. The tube is adapted for feed water heaters, evaporators, and any use involving the abstraction of heat by means of tube surface.

"HAWKINS' SET," six volumes, price $11.00, on practical steam and electrical engineering will be supplied to the subscribers of MARINE ENGINEERING, on easy monthly terms of payment. Send for description of books and terms. **THEO. AUDEL & CO.,** Publishers, 63 Fifth Ave., New York City.

WILLIAMS' SUBMARINE COMPOSITIONS.—In a letter to the manufacturers of this composition the recent manager of the Brooklyn and New York Ferry Company said: "We take pleasure in saying that you have coated our seven iron ferry boats with your submarine protective and anti-fouling compositions, and that we are well satisfied." This composition is manufactured by M. J. Williams, 77 South street, New York.



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WESTON ELECTRICAL INSTRUMENT CO.,
114-120 William St., NEWARK, N. J., U. S. A.

PARAGON BOILERS.—There has been a large demand lately for Paragon Boilers, invented and sold by Capt. M. DePuy, 19 South street, New York. These boilers have proved satisfactory for use on river boats and other small boats.

USEFUL PIPE CUTTER.—Those of our readers who have occasion to use a pipe cutter will be interested in an advertisement published elsewhere by the Barnes Tool Company, New Haven, Conn. This tool is made in all sizes and to suit all conditions.

A STEEL EXPOSITION BUILDING.—The Berlin Iron Bridge Co., East Berlin, Ct., shipped recently twenty-seven carloads of structural metal, which is the skeleton of the machine shop to be used by American exhibitors at the Paris Exposition. The building will be 343 by 77 ft., and was shipped all parts complete, ready to be erected without delay.

BUFFALO FEED WATER HEATERS.—The Buffalo Feed Water Heaters and Purifiers are in use on many of the large modern steamers on the Great Lakes, with all types of boilers, square, marine, Scotch, cylindrical, and water tube, and with steam pressures from 40 to 250 pounds. In every case they are reported to have given good satisfaction, and in many instances orders have been duplicated. No skilled help is required to operate them; they are not liable to get out of order. That they increase the life of a boiler and decrease the cost of repairs is a special claim of the manufacturer, Robert Learneveth, 200 Lafayette avenue, Buffalo, N. Y.

SUPERIOR GAS ENGINES.—In writing to the Lake Shore Engine Works, Marquette, Mich., regarding a Superior gas engine recently purchased, Peter Anderson, of Marquette, says: "The 8 H.P. double cylinder Superior gasoline engine installed in our fish boat this spring as auxiliary power gives us perfect satisfaction. We have no use for sail power since installing the engine. We make a trip every day of 10 to 12 hours' run, and have never had the first trouble with our engine. The boat is 41 ft. long by 10 ft. beam, and makes seven miles an hour. We now use twice as many nets as heretofore, and make six trips a week, instead of two or three before."

A LARGE PROPELLER.—H. G. Trout, Buffalo, N. Y., shipped the latter part of November a solid cast iron propeller 14 ft. in diameter from his works in Buffalo to go to Mobile, Ala., by way of New York city, for the steamer *S'Oteri*. The weight of the propeller was 7,500 lb. It is stated that there has only been one other propeller as large as this cast solid in a lake port, and this one was furnished by Mr. Trout last season for the ocean going steamer *Pensacola*. This season is reported as being one of the best in the history of this company, and there is an especially large demand for propeller wheels for ocean going freight steamers as well as for vessels on the Lakes.

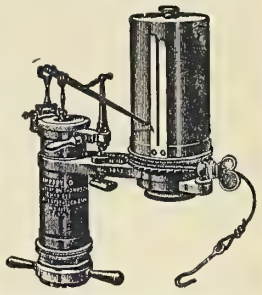
COMBINATION PACKING.—A new packing has been put on the market by A. W. Chesterton & Company, 49 India street, Boston, Mass., which is an elastic sectional rod and plunger packing. It is intended to be one of the best steam packings in the market, and is especially good for hydraulic work, or where the packing comes in contact with cold water. The packing is so made that the rubber cushion expands in heat and keeps the stuffing box tighter, while it acts as an elastic cushion when used as hydraulic packing. The flax acts as a reservoir for oil and lubricates the rod. Being sectional, but little pressure on the gland is necessary, and on account of the give and elasticity the packing can be almost entirely used up.

MANY NEW AIR COMPRESSOR PLANTS.—The Clayton Air Compressor Works, 26 Cortlandt street, New York, report their factories as crowded with orders, both domestic and export. Among the plants which have recently been equipped with Clayton machines are the following: Pacific Coast Borax Co., of Bayonne, N. J.; McIntosh, Seymour & Co., Engine Builders, Auburn, N. Y.; The Frick Company, Waynesboro, Pa.; Standard Oil Company, Long Island City; New York & Boston Dyewood Co., Greenpoint; Lelance & Grosjean Mfg. Co., Agate Manufacturers, Woodhaven, N. Y. The Clayton Co. is now filling a large order for compressors to be used by the Russian Government, and also building three-stage compound compressors for the Platt Laboratory, Atlanta, Ga.; Sault Ste. Marie Pulp & Paper Co., Saulte Ste. Marie, Ont.; Geyser's Natural Carbonic Acid Gas Co., Saratoga Springs; Compressed Gas Capsule Co., Bridgeport, Conn.

UNCLE SAM *Knows a GOOD THING. That is why we have had a number of orders from different departments of the service for our*

IMPROVED ROBERTSON-THOMPSON INDICATOR.

Have You an Indicator?



20,000 Engines are packed with EUREKA. Every naval vessel carries it. Isn't that a good reason why you should try it? There are imitations.

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Minimum Floor Space

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All principal Cities in U. S. and Canada.

NEW FORM OF EXHAUST HEAD.—One of the important features of a modern steam plant is an exhaust steam pipe head. To be effective it must thoroughly separate the water from the steam, and thereby prevent the constant spraying of roofs and walls with consequent deterioration and expensive repairs. In the form of exhaust head built by the B. F. Sturtevant Co., Boston, Mass., the principle of centrifugal force is utilized to secure perfect separation. Dry exhaust steam weighs only .038 lb. per cubic foot, while water of the same temperature weighs 59.36 lb. per cu. ft. It is, therefore, evident that inasmuch as centrifugal force is proportional to the weights of the bodies in motion, the water will be thrown outward with much more than the force exerted upon the steam. In the Sturtevant exhaust head the steam passes up the interior pipes, is discharged tangentially close to the shell, and is thereby given a vigorous whirling motion. The entrained water—likewise the oil—flies outward, strikes the cool side and trickles down to the outlet at the bottom. The steam, now perfectly dry, finds ready escape through the central opening above. The action is positive and absolute. Perfect separation must be the result. These heads are built in sizes to fit pipes from 1 in. to 20 in. All sizes above 10 in. are flanged instead of tapped.

CORRESPONDENCE INSTRUCTION.—The United Correspondence Schools of New York city have a course of study in Marine Engineering. The system of practical education by mail has been developed to a high point by this institution. Unlike the pupils of an ordinary college, they do not have to reside in any one locality. They do their studying in leisure hours, so as not to interfere with their daily work, and they do not have to give up the salaries or wages which mean a living to them. There never was a time when such a demand existed for competent engineers as at present. Hundreds and thousands of bright, intelligent men are now working from morning until night at low wages who would be good engineers if they only had been able to pursue the necessary studies; but circumstances have prevented them from taking a course in technical education at a college. All who wish to fit themselves for work of this kind by studying in their leisure hours, without interfering with their daily work, can write to the United Correspondence Schools Company, 154-156-158 Fifth avenue, New York city, and ask for particulars. The cost of tuition is moderate, and a system of small monthly payments makes it easy for any one to take up the study. The instructors are experts, who have been through the practical work themselves, and who are fitted to be of direct assistance to every student, and to understand the particular needs of each.

A BUSY SHIPYARD.—The S. S. *San Juan*, which was recently launched for the New York & Porto Rico S. S. Co., of New York, at the Harlan & Hollingsworth Yard, Wilmington, Del., is a sister ship to the *Ponce*. She is designed to carry the maximum amount of freight on the smallest coal capacity, and is of the following dimensions: Length over all, 335 ft.; length on water line, 322 ft.; beam moulded, 42 ft.; depth at center to main deck, 19 ft. 10 in.; depth to spar deck, 27 ft. 8 in.; draft loaded, 19 ft.; gross tonnage, 3 503. Her engines are direct tri-compound, with inverted cylinders 24 in., 38 in., 62 in. and 42 in. stroke. Steam is supplied by two Scotch boilers 14 ft. 6 in. dia., 11 ft. long, with six furnaces 48 in. dia. and built to stand a working pressure of 180 lb. She has six water-tight bulkheads, four hatches, four winches, Hyde steam capstan, two steel masts, electric light plant for 250 lights, five-ton evaporator, five tanks of 8.000 gallons capacity, bunker capacity 350 tons. Accommodations for seventy-two first class and twenty second class passengers are provided, and she is built to sustain a sea speed of 12 knots. She is tastefully fitted out with hardwood, and has every modern convenience. The *San Juan* is the eighth ship launched by the Harlan & Hollingsworth Co. in the past year, and there are now in the yards the torpedo boat destroyer *Stringham*, two 29-knot torpedo boat destroyers for the United States Navy, the *Hull* and *Hopkins*. Two freight steamers for the New York & Baltimore Transportation Line are now in frame

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SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

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A young man is wanted in the draughting room on marine work. Address, DRAUGHTSMAN, care MARINE ENGINEERING, 309 Broadway, New York.

YACHT ENGINE WANTED.

New or second-hand compound yacht engine wanted, about 100 h. p. Send full description and lowest price to PIGOTT & FRENCH CO., Seattle, Wash.

SECOND-HAND ENGINES WANTED.

WANTED—One second-hand Compound Condensing Fore and Aft Steamboat Engine, cylinders 14 x 28 x 14, or one second hand Double Steeple Compound Condensing Engine, cylinders 9 x 18 x 24, or approximating these sizes; also one Double Simple Engine, cylinders about 7 x 9. Address

A. C. WADE, Jamestown, N. Y.

TO SHIPBUILDERS AND ENGINEERS.

A position of responsibility, in charge of construction or steam engineering design, is desired by an engineer of wide experience on the Clyde and in American yards. Responsible for machinery design and construction of recent highly successful vessels. Much experience in drawing up estimates and in closing contracts. Can produce results in the draughting room, the shop, or on trials. Address, RESULTS, care MARINE ENGINEERING, 309 Broadway, New York.

There is nothing so efficient and economical as

Tilghman's Patent Sand Blast

Machinery for Cleaning Hulls,

removing scale from castings and metals of all kinds. Send for particulars.

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by securing a thorough technical education in your profession. The training will increase your efficiency and **advance your salary.**

MARINE ENGINEERING

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American School of Correspondence,

(CHARTERED BY THE COMMONWEALTH OF MASS.)

BOSTON, MASS., U. S. A.

THE WATSON WATER TUBE BOILER.—Egbert P. Watson, Elizabeth, N. J., the inventor and manufacturer of the Watson water tube boiler, calls attention to the fact that his boiler conforms to the desirable qualities in a marine water tube boiler recently referred to by Engineer-in-Chief George W. Melville of the Navy, in his address before the Society of Naval Architects.

PNEUMATIC TOOL PATENTS.—The litigation which has been going on for some time over pneumatic tool patents has been adjusted, so far as the Standard Pneumatic Tool Co. and the Chicago Pneumatic Tool Co., both of Chicago, are concerned. Each company has made arrangements to use the other's patents under conditions mutually agreed upon, thus protecting each other's customers and removing all threats of infringement claims.

ELECTRIC HEATERS.—Yachtsmen and others who operate vessels on which there are electric plants will be interested in the improved electric heaters manufactured by the Gold Car Heating Co., Frankfort and Cliff streets, New York. These heaters have many features peculiar to themselves, and have been used quite extensively on electric cars and in other places where compactness and efficiency are desired.

HOLLOW STAYBOLTS.—The Falls Hollow Staybolt Co., Cuyahoga Falls, O., emphasizes the fact that its hollow staybolts are rolled hollow from solid material, thus giving uniform strength throughout, so that the fire box which is equipped with these bolts will stand every wear and tear. The claim is made that the drilling process adopted for other bolts weakens the bolt and causes it to break more quickly.

THE PLAINT OF THE STOKER.

Ay! sing the admiral's praises,
An' sing o' the captain, too;
An' swill yer wine to the staff an' line
An' all o' the gun-deck crew,
But who's to sing o' the stoker,
Er tell o' the part he bears?
Fer he lives in a hole, an' he dies in a hole,
An' who the devil cares?

So strip to the waist, my maties,
An' work as a stoker works,
Fer fast er slow, the man below
Is never the man who shirks;
An' the first to drop, we'll lay him
Soft side o' the fireroom stairs,
Fer he lived in a hole, an' he dies in a hole,
An' who the devil cares?

There's a chase in sight, my maties,
An' "Steam! more steam!" 's the cry;
So bend your backs to the grating racks,
An' work 'till it's time to die;
Fer the ship must do her duty
In pride o' the flag she wears
Tho' we live in a hole, an' we die in a hole,
An' who the devil cares?

Come! strike up a song, my maties,
An' mock at the death-white heat;
Fer the fight's begun, an', lost or won,
The heart o' the ship must beat!
Fer them at the guns there's glory
That never a stoker shares—
Fer we live in a hole, an' we die in a hole,
An' who the devil cares?

So on with the dance, my maties,
Tho' you sob an' gasp fer breath;
For the demon Coal is black o' soul,
An' he drives his slaves to death!
But we'll sink or swim together,
An' it's little we'll get o' prayers—
Fer we live in a hole, an' we die in a hole,
An' who the devil cares?

—*Karl Kennett in Kansas City Star.*

PNEUMATIC RIVETERS.—The pneumatic riveter manufactured by the Bethlehem Foundry & Machine Co., South Bethlehem, Pa., has been introduced in many shipyards and boiler shops, and is found to be exceptionally efficient. The claim is made that two men and two boys operating one of these riveters can drive as many rivets in one hour as two men and one holder-on can drive by hand work in a day of ten hours. The use of skilled labor is done away with by these machines.

TONKIN BOILERS.—The demand for his patented internally fired water tube boilers was such that John J. Tonkin, whose headquarters are at 26 Cortlandt street, New York, was compelled last summer to build a new factory. This plant is now practically completed, and Mr. Tonkin is ready to fill all orders more promptly than ever before. The features claimed for the boiler are the rapid circulation and great economy of the boiler, that can be used up to 500 lbs. pressure if need be.

A THRIVING PUMP BUSINESS.—The Union Steam Pump Co., Battle Creek, Mich., has been so crowded with orders for some months past that it has been compelled to largely increase the capacity of its plant, and the main building is having a second story added to it. The rush of work was such that the shop could not be shut down, so the second story was built without interfering with the ordinary routine of work. This building is now nearly completed, and the company will immediately equip it with machinery in order to be able to keep up with the orders.

Fill Up Your Volumes

by ordering now any back numbers which are lacking.

Last year—likewise the year before—many subscribers were disappointed because the supply of several issues was exhausted before they got around to the point of sending in their orders.

Their volumes are still incomplete, as requests for back numbers are filled in the order in which they are received.

The same rule will be followed this year, so if you want any back numbers be prompt with your orders.

ADDRESS:

Aldrich & Donaldson,

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THE BARNES IMPROVED THREE-WHEEL

PIPE CUTTERS

CUT FROM 1-8 TO 12 INCH PIPE.

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200,000 IN USE.

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SIMPLE
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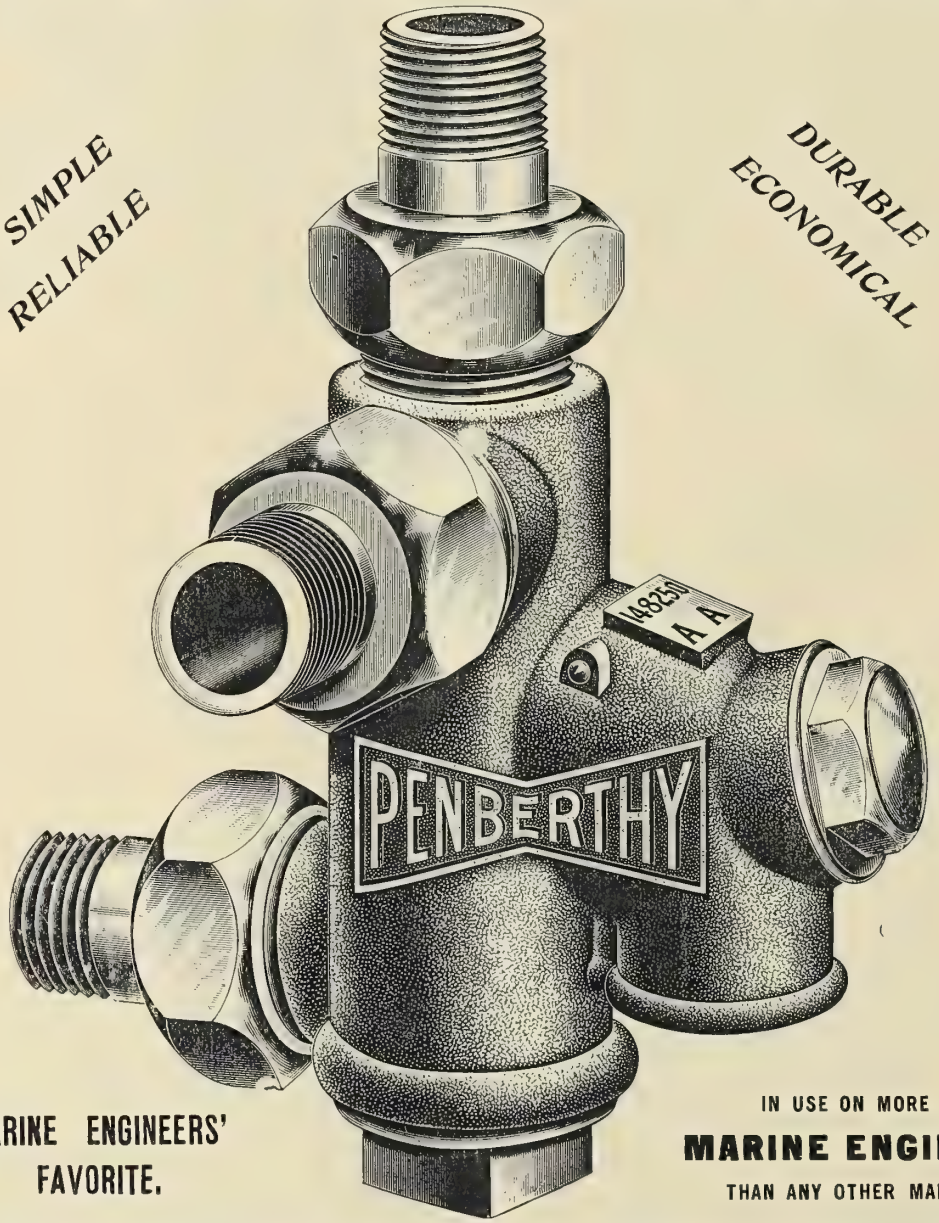
DURABLE
ECONOMICAL



MARINE ENGINEERS' FAVORITE.

IN USE ON MORE
MARINE ENGINES
THAN ANY OTHER MAKE.

PENBERTHY INJECTOR CO.
Branch Factory, WINDSOR, CAN. DETROIT, MICH., U. S. A.

TRADE PUBLICATIONS.

"Force Feed Lubrication" is the title of a neatly printed catalogue, 4 by 6 in. in size, issued by the Stirling Lubricator Company, Rochester, N. Y. The catalogue is exceptionally well printed and comprises 16 pages, and describes concisely the Stirling force feed lubricator. Two excellent pictures of the lubricator are also given. The special features of the lubricator are strongly emphasized.

Machinery Advertising is the name of a publication which has just made its appearance in Cleveland, Ohio. The heading states that it is a journal of advertising, suggestion, advertising information, advertising media for machinery and supply makers of boilers. It is the convenient size of 6 by 9 in., well printed, and the first number, just at hand, would indicate that this new publication has a field for itself.

The Mianus Motor Works, Mianus, Ct., issues a very attractive catalogue, 4 by 7 in. in size, and thirty pages or more, illustrating and describing their gas engines. Several pictures of the engine are given and much detailed description. Much attention is given to the sparking device. This company also manufactures hulls, and several pictures are given of the types. Yachtsmen and others interested in gas engines will want to send for a copy of the catalogue.

The Durable Wire Rope Company, 234 State street, Boston, Mass., issues a catalogue, 4 by 6 in. in size, describing the wire rope it is putting on the market. This rope is a recent invention, and its many characteristics are fully described in the catalogue. Several half tone engravings show the construction of the rope and the manner in which it is protected. This rope is designed especially for running rigging, hawsers, and all uses where rope is needed in marine work. One of the special claims made for the rope is that it will not rust.

Yachtsmen and others will be interested in a very handsomely printed catalogue entitled "Boats and Their Construction," issued by the Taunton Yacht Works, 1202 Harrison Building, Philadelphia, Pa. The catalogue is well illustrated and the text is divided up under the heads of steam yachts, sailing yachts, launches, house boats, yachts, boats, skiffs and canoes. As stated in the text, the purpose of this company is to adapt all boats to the requirements of the owner. Special attention is given to steam yachts, house boats and the better grade of launches.

Users of pipe coils and bends of every description for heating and cooling will be interested in a catalogue on this subject issued by the Whitlock Coil Pipe Company, Elmwood, Ct. It refers to iron, brass, and copper pipes or tube. A number of illustrations are given, showing coils of various kinds, such as oblong, zig-zag, spiral, conical, flat and irregular, quarter turns, and return bends. Other catalogues are issued by this company, one devoted to feed water heaters, in which the American Standard feed water heater is illustrated, and the other on feed water and special heaters, purifiers, etc.

Gas engines manufactured by Palmer Bros., Mianus, Ct., have a well illustrated and interesting catalogue devoted to them, 5 by 7 in. in size. Several types of the engines are depicted and many launches are shown equipped with these engines. Altogether there is much information in the catalogue which would be of use to yachtsmen and other users of engines. Many testimonials are given from purchasers, speaking in high terms of the efficiency of the engine. A second catalogue is issued showing the manner in which the Palmer engine is worked for automobile uses. Reference is also made to several accessories for yachtsmen, such as acetylene searchlights, etc.

Users of marine hardware, as well as rigging, cotton duck, engineers' supplies, and in short everything that can be called for on vessels or yachts, should have a copy of catalogue No. 25, issued by George B. Carpenter & Co., 206 South Water street, Chicago, Ill. The catalogue is 7 by 10 in. in size, and is very fully illustrated. A good deal of attention is given in the front of the book to yachts of all kinds. Following this are many pictures and tables of size of screws, nails, capstans and everything that goes to complete launches and yachts. Some interesting lessons in tying knots, etc., are given. Binnacles, compasses, lamps, and lanterns and all kinds of life-saving apparatus receive full attention. Much completeness is added to the catalogue by an index which in itself comprises about eight pages.

The Row tube for boilers, condensers, heaters and such uses, although a new product in this country, is not new across the water, having been in use there for some years. It is described in much detail and in its many applications in a complete, neatly printed, well illustrated catalogue issued by the manufacturers of it, the Heat Transmission Company, Danbury, Ct. Illustrations are given of the manner in which the tube is indented, thus increasing its heating capacity, as claimed in the catalogue, twofold. This indentation makes the tube more elastic lengthwise. Another claim is that the liability of fracture or leakage is greatly reduced. Illustrations in the catalogue show the tube as applied to feed water heaters, evaporators and fresh water condensers, radiators, etc. These tubes have been used extensively in boilers, and among the recently equipped yachts is Sir Thomas Lipton's *Erin.*

Four interesting catalogues for shipbuilders and marine engineers are issued by the Buffalo Forge Company, Buffalo, N. Y. One is devoted to the various types of engines manufactured. These are for running direct connected electric plants, but not for purposes of propulsion. The engines are very handsomely illustrated and completely described. Another catalogue is devoted to mechanical induced draft. Several types of draft fans are shown, and each is completely described. Another catalogue takes up the question of mechanical forced draft, and fans of the different types are illustrated and the system of draft shown by illustration. The other catalogue is devoted to forges and the down draft type by which smoke is removed as generated. A number of types of forges are illustrated, and their construction is made quite apparent by the handsome quality of the illustrations. These catalogues are about 4 by 7 in. in size, and undoubtedly copies of them will be sent to all our readers who wish.

A very handsome book has been issued by the Babcock & Wilcox Company, 29 Cortlandt street, New York, regarding their marine type water tube boilers. The book comprises 118 pages and is handsomely printed on heavy half-tone paper and is firmly bound in board. As the pages are 9 by 11 in. in size, good opportunity is given for illustrating the boilers. The text is very complete, covering very fully the history of these boilers and describing many of the vessels upon which the boilers have been placed. The reputation made by the Babcock & Wilcox boilers is evident from the fact that over 50,000 horse power is under construction in the Elizabeth shops at this time. Every part of the boiler is fully illustrated in this book, and all the types of vessels upon which the boilers have been installed are shown. A great deal of important information is given regarding the installation and management of boilers. There is also much information regarding the subject of testing water. The subject of corrosion is gone into fully. A very complete index adds to the value of the book.

The 1900 catalogue of steam steel yachts, launches and all kinds of engines, etc., manufactured by the Racine (Wis.) Boat Mfg. Co. is more complete than the previous ones issued by this company. The catalogue comprises over seventy pages, 6 by 10 in. in size, and the printing is very effectively done in two colors. The establishment of this company is well illustrated, showing how thoroughly the facilities are for all kinds of yacht work. Several large steam

yachts which the company has built are shown and fully described, and there is much information regarding the water tube boilers and engines which the company manufactures. The subject of launches is very fully covered, and many illustrations are given of the various styles and types of launches manufactured. Many pages have five illustrations on a page, and a number of dimensions accompany them. Much more information is given regarding the various styles of launches than usual. Altogether the catalogue is an unusual one. Sloops, schooners, and cat boats have several pages devoted to them, and in the back part of the catalogue canoes, hunting boats, and boat fittings receive considerable attention.

The Chapman Valve Mfg. Co., Indian Orchard, Mass., has issued one of the most business-like and useful catalogues we have ever received from a manufacturing establishment. It is a cloth-bound volume of 400 pages, size 5 by 8½ in., devoted exclusively to valves, fire-hydrants and their accessories, such as flanges, floor-stands, gearing, indicators, etc. It includes descriptions, illustrations, price-lists and dimension sheets of solid wedge double-face gate valves for every purpose and pressure of all sizes from ¼ in. upward. Valves for different services and pressures are designated by list numbers, thus affording a ready means of identifying any particular kind of valve. The book is divided into twelve "sections," as follows: (1) Bronze valves of all kinds; (2) iron body valves with babbitt seats for water of any pressure and for steam of any temperature not exceeding 325° Fah.; (3) iron body valves with bronze seats for steam of high pressure or temperature; (4) iron and semi-steel valves for gas, oil and ammonia; (5) companion flanges and flange unions; (6) indicators, floor-stands and gearing for the preceding valves; (7) fire-hydrants of all kinds; (8) sluice-gates; (9) instructions for ordering; (10) dimensions of gate valves; (11) recommendations to purchasers; (12) Chapman globe valves. In the first four of these sections the various kinds of valves are described and illustrated, a complete description accompanying each list. A new and specially valuable feature of these descriptions is that in each is mentioned a number of purposes for which the valve is particularly adapted and the allowable working pressure of the valve is given. The working pressures covered by these lines of valves range from vacuum to 6,000 pounds per square inch. Sections 10 and 11 are of special interest to engineers and designers. The first contains complete dimension sheets of all the valves, flanges, etc., covered by the 61 preceding lists. The second contains the makers' detailed recommendations concerning the proper kind of valve to be used for each of the various pipe lines of a number of the more common installations. Section 12 is devoted to an exposition of a new and improved type of globe valve, which this company is now getting out, and a complete alphabetical index ends the book. The book is well printed and splendidly illustrated, and has apparently been prepared by an engineer who has a thorough understanding of the needs of designers and power users.

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NEW CATALOGUE
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112 PAGES—ILLUSTRATED
FREE

THE LOZIER ENGINE THE LOZIER ENGINE

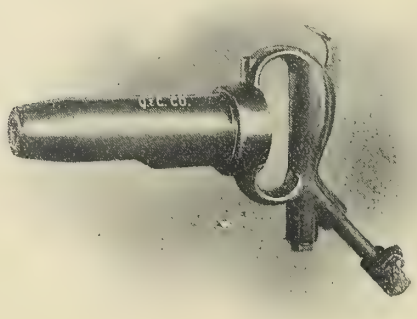
Gasoline is good fuel for good or bad engines. The only difference is that good engines run while bad ones won't. If your engine don't run don't blame the gasoline. What you want is a **LOZIER ENGINE.** It's a gilt edge power for any sized yachts. Why it is superior to all other engines is told in our advance catalog. It's full of meat. Write for it.

LOZIER MOTOR CO., Toledo, O.
Factory Office, Chamber Commerce Building.

THE LOZIER ENGINE THE LOZIER ENGINE

OUR NEW PNEUMATIC HAMMERS

HAVE LESS VIBRATION AND MORE POWER THAN ANY OTHER MAKE OF TOOL. THEY ARE OF OUR WELL-KNOWN VALVELESS TYPE, BUT HAVE BEEN GREATLY IMPROVED.



THE Q AND C

CHICAGO.
NEW YORK.

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GRAPHITE
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VALVES
AND
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Is the title of a little pamphlet that should be interesting to every engineer and to every one interested in better lubrication.

IT IS SENT FREE OF CHARGE.

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REDUCING VALVES

to control or reduce steam, water or air pressures.

"MASON"

Valves have had a world-wide reputation for years.

Write for prices.

THE MASON REGULATOR CO.,
BOSTON, MASS.

BUSINESS NOTES.

CROSS OIL FILTERS.—The business of the Burt Manufacturing Company, Akron, Ohio, has been increased so greatly of late, and many large orders have been filled for Cross oil filters. Thomas A. Edison has just placed a large duplicate order for these filters, and the Metropolitan Electric Supply Company, one of the largest electrical concerns in the British Empire, has recently placed an order for four 90-gallon Cross filters. The British Government has also been a large buyer of these filters during the past year.

THE ELLIS SYSTEM OF PLUMBING.—A new system of marine plumbing is being introduced by the Ellis Marine Plumbing Company, 32 Broadway, New York. The system has already been tested, having been installed on the steam yacht *Neaira* of Mr. Charles Gould. The feature of this system is the drainage tank, which is placed low down in the vessel. This tank is so constructed as to automatically empty and close itself, and is provided with ample ventilation, thus avoiding the obnoxious odors frequently encountered where the plumbing is antiquated. The tank discharges automatically at any given point and can be operated by steam, water, or air. In steam yachts the connections are usually made with the steam plant, but in sailing yachts, the system can be operated by hand pump which uses either air or water. The closest fixtures are of the usual type. The system is arranged and ventilated according to the requirements of the sanitary laws of the City of New York. An important point is that the skin of the vessel is pierced at one point only for the discharge pipe from all the fixtures in the ship. The company guarantees it to work for one year and offers to inspect any vessel and make recommendations regarding sanitary appliances.

"LITTLE GIANT" PNEUMATIC TOOLS.—Mr. H. J. Kimman, managing superintendent of the Standard Pneumatic Tool Company, Marquette Building, Chicago, Ill., has just returned from an extensive business trip to the large European centers. While in England he supervised the establishing of large works at Chippenham, near London, for the manufacture of "Little Giant" pneumatic tools for European trade. Over $50,000 worth of the most improved machinery and labor-saving devices were installed in this plant. Mr. Kimman reports that the opposition of the labor organizations across the Atlantic to pneumatic tools, because of their labor saving qualities, is greatly dying out. The export business of the Standard Company has been very great during the past year, and "Little Giant" pneumatic drills, hammers and boring machines are being adopted by some of the largest ship yards, machine shops and boiler works, not only throughout the British Isles, but throughout all parts of the Continent. One of the most recent orders of the Standard Company was for $25,000 worth of tools to go to Holland. The domestic trade has even more than kept pace with the export, so that the Standard Pneumatic Tool Company will probably again be compelled to increase the capacity of its works.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON.

Specialty of BRASS VALVES and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

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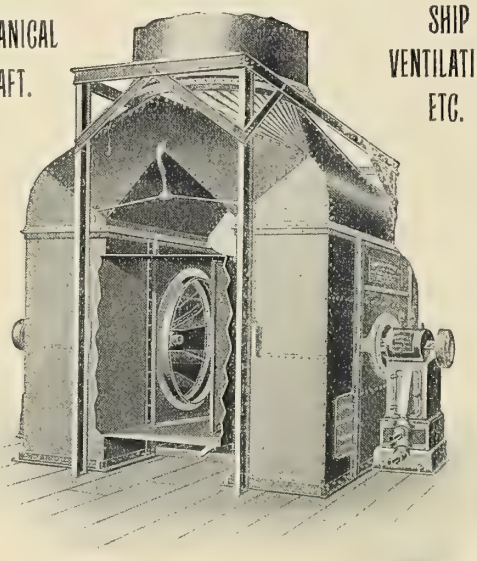
BUFFALO STEEL PLATE FANS
FOR
MECHANICAL DRAFT.
SHIP VENTILATION ETC.



DUPLEX ARRANGEMENT FOR
Mechanical Induced Draft.
Steaming Capacity of Boilers Increased to a Maximum.
Special Types for Steamships.
See Special Catalogue.

BUFFALO FORGE CO., BUFFALO, N. Y.
New York Office: 39 Cortlandt Street.

CALENDARS RECEIVED.

David Kahnweiler Sons, 437 Pearl street. New York. The calendar contains a reproduction of the famous sea picture, "To the Rescue."

The Standard Varnish Works, 29 Broadway, New York. A very effective calendar in appearance, 12 by 19 in. in size. A colonial dame is very well represented in colors.

The Youngstown Iron & Steel Roofing Company, Youngstown, Ohio. At the top of the calendar is a color picture in a gilt frame, "The Bride and the Fortune Teller."

The Bullock Electric Mfg. Co., Cincinnati, Ohio, calendar for the month. The January issue is very artistic, and is printed in several colors, and has a Happy New Year greeting.

The Johnson Iron Works, New Orleans, La. A calendar about 3 by 6 in. in size with a sheet for each month. The calendar is printed in several colors and at the head is a picture entitled "Joy."

Thomas P. Benton & Sons, La Crosse, Wis. A large calendar printed in red. At the top is an effective picture, "Under the Willows." It represents a meadow scene with cattle resting under a group of willows.

The Western Electric Company, Chicago and New York. At the top is a picture of a wharf scene, and in the distance is a large building, which is the New York factory of this company. At the dock in the foreground an ocean liner is loading with grain.

M. W. Fogg, 20 Fulton street, New York. At the top of the calendar is a scene in water color of three sloops in full sail. The tides at Governor's Island, New York, are given for each day, and an explanation by which the tides at Sandy Hook can also be estimated.

The Ashton Valve Company, 271 Franklin street, Boston, Mass. A lithographed calendar with picture, 5 by 7 in. in size, of the "Summer Girl," with a sheet attached to the calendar for each month in the year. A copy of this calendar is sent to engineers or others interested in marine work who mention MARINE ENGINEERING; to outsiders a nominal charge of ten cents is made.

The American Steam Gauge Company, Boston, Mass. A neatly lithographed calendar, 8 by 10 in. in size, the entire calendar being on one piece of bristol board, is sent out by this company. The steam pump is effectively lithographed on one side, and nearly opposite is a picture of the works of the company.

The Bethlehem Steel Company, 100 Broadway, New York. A very effective calendar, 12 by 18 in. in size, is issued by this company. At the top is an engraving of the hydraulic forge working up a hollow shaft from an ingot of fluid compressed steel. On each of the monthly sheets is a different picture representing the different scenes in the forging department.

Wilson & Silsby, Rowe's Wharf, Boston, Mass., issues an especially nautical calendar, at the head of which is an excellent picture of the schooner yacht *Latona*. In addition to the days of the month, the calendar gives the local time for high water, low water and when the sun rises and sets. The table gives the record for the Boston Navy Yard, but by means of a key accompanying the calendar it is easy to find out the tides in most of the New England ports, as well as in New York and elsewhere.

Copies of these calendars can probably be had by writing to the publishers and mentioning MARINE ENGINEERING.

Coal Smoke

Is destructive to lead paints. White lead quickly changes to the dark sulphide of lead in its presence.

White Paints

Or tints based on Zinc White are unaffected by coal gas. Durable tints and shades cannot be made without **Zinc White.**

FREE:
Our Practical Pamphlets,
"The Paint Question."
"Paints in Architecture."

The New Jersey Zinc Co.,
71 Broadway,
NEW YORK.

"HAWKINS' SET," six volumes, price $11.00, on practical steam and electrical engineering will be supplied to the subscribers of MARINE ENGINEERING, on easy monthly terms of payment. Send for description of books and terms. **THEO. AUDEL & CO.,** Publishers, 63 Fifth Ave., New York City.

A Long Established Boat Business.—The boat business of John T. Smith, 159 South street, New York, is now so extended that it includes the manufacture of a complete line of life-saving boats, also launches and yachts.

Asphalt Roofing and Paint.—Users of asphalt for roofing purposes, asphalt paint, roofing cement and kindred specialties will be interested in the business conducted by the Asphalt Ready Roofing Company, 136 Water street, New York. The roofing is especially designed for use of wharf buildings, boiler houses and similar uses. It is not effected by salt atmosphere, as much metallic roofing is, and the manner of laying the roofing is very simple. No paint for protection is necessary. This roofing is claimed to be proof against fire, and has proved very desirable where there is danger of leaks. The asphalt paints which this company sells are put up in convenient packages, and are particularly designed for protecting metal surfaces under all conditions.

Neafie & Levy Yard.—The Neafie & Levy Ship and Engine Building Company, Philadelphia, Pa., has made a remarkable record for a yard of its size during the past eighteen months. A complete engine has been turned out on an average of every seventeen days, and the minimum size of engine has been 300 horse power. Several of the engines have been of as high a capacity as 3,000 horse power. A new boat is completed every six weeks. The boiler shop, however, has made the record for the establishment. It is only about 50 by 175 ft. and somewhat lacking in the latest improved tools, but there has been turned out 8,700 tons of boilers and fittings during the year past, although the shop was nearly closed for ten weeks for lack of materials. Four vessels are now being finished in the yard. The *Olympia, Richmond, Corrington* and *Gerry.*

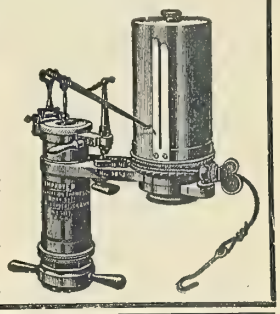
Bolts, Nuts, Anchor Cables, Etc.—A catalogue has just been issued by the American Iron & Steel Company, Lebanon, Pa., referring to the combined business of this company, which purchased the works of the Pennsylvania Bolt and Nut Co., Lebanon Iron Co., and East Lebanon Iron Co., all of Lebanon, Pa., and J. H. Sternbergh & Son, and the National Bolt, Nut and Rivet Works, of Reading, Pa. These plants were among the largest and best of their kind, not merely in the United States, but anywhere in the world, with an established reputation in the field each occupied. The consolidation of the various interests mentioned makes the American Iron and Steel Manufacturing Co. the largest manufacturers of bolts, nuts, rivets, and kindred articles on the globe. The new company employs 4,000 men, and in the department of finished bar iron and steel alone the annual product will be about 150,000 tons. In addition to this large output of bars, the various plants make, on a large scale, all kinds of car forgings, steam railroad and traction forgings, ship yard supplies, ship chandlery supplies, railroad spikes, turn-buckles, washers, etc. Close attention is paid to small orders as well as large ones.

UNCLE SAM *Knows a GOOD THING. That is why we have had a number of orders from different departments of the service for our*

IMPROVED ROBERTSON-THOMPSON INDICATOR.

Have You an Indicator?

20,000 Engines are packed with EUREKA. Every naval vessel carries it. Isn't that a good reason why you should try it? There are imitations.



Jas. L. Robertson & Sons,
218 Fulton St, NEW YORK.
Branches: Boston, Philadelphia.

WESTINGHOUSE
GENERATORS
FOR
SHIP LIGHTING
AND
ELECTRIC POWER

Westinghouse Electric
& Mfg. Co.
PITTSBURG, PA.

The British Westinghouse Electric & Mfg. Co., Ltd.
LONDON, ENG.

57 F.

HIGH GRADE GASOLINE
Marine Engines
FOR EVERY SERVICE.

SEND STAMPS FOR CATALOGUE.
The Charles B. King Co.
DETROIT, MICH.

STEAM SEPARATORS.—The International Navigation Co. has just placed an order with The Potter Separator Co., of No. 39 Cortlandt street, New York city, for sixteen of its Mesh separators.

A BUSY SHOP.—Owing to the demand for marine engines, centrifugal pumps, machinery and marine boilers, the Kingsford Foundry and Machine Works, Oswego, New York, are running all their departments thirteen hours a day.

LIFTING JACKS.—A. O. Norton, manufacturer of ball-bearing lifting jacks, 167 Oliver street, Boston, Mass., and Coaticook, Quebec, Canada, has built a 75 ft. by 35 ft. two-story addition to his Canadian plant, and reports enough orders already booked to keep both plants employed to the maximum of their capacity until April.

OVER CLOTHES.—Engineers and others who use overalls and over clothes will be attracted by the advertisement of Hamilton, Carhartt & Co., Detroit, Mich., who make a specialty of Union made over clothes. This company issues a booklet which will be sent upon request, the only stipulation being that reference be made to MARINE ENGINEERING.

MECHANISM FOR DISCHARGING WATER.—Users of yachts and vessels will be interested in a mechanism for discharging liquids of all kinds being put on the market by J. George Hermes, 21 Union avenue, Mt. Vernon, N. Y. This apparatus is guaranteed to keep the vessel free from odors which are likely to occur when closets are below the water line. It has been introduced on a number of yachts, among which are the following: *Nourmanhaul, Corsair No. 1, Corsair No. 2, Gloucester, Corsair No. 3, Sultana, Erin, Donthea, Sovereign, Scorpion.*

THE DEATH OF MR. ALTENEDER.—Theodore Alteneder, head and founder of Theodore Alteneder & Sons, Philadelphia, makers of mathematical instruments, died December 27, aged seventy-seven years. Mr. Alteneder was a native of Bavaria, and came to this country in 1847. He began the manufacture of instruments in Philadelphia, and his inventions and improvements have made his name familiar to the engineering profession. He was a member of the Franklin Institute. Mr. Alteneder had practically retired from business some time ago as the details had been for some time in the hands of his sons.

LAUNCHES AND BOATING SUPPLIES.—An attractive catalogue devoted to the subject of launches, boats, skiffs and canoes has been issued by William Wood, 29 West 125th street, New York. Mr. Wood has a well-equipped factory at 1941 to 1959 Park avenue, where he manufactures his own hulls. He has been in this business fifteen years. He is also interested in skiff and canoe building concerns at Cape Vincent and at Clayton, and is thus well equipped to promptly fill any and all orders for this kind of craft. Mr. Wood also makes a specialty of new and second-hand gasoline, naphtha and steam launches, as well as yacht and ship tenders, and constantly has a number on hand; he also carries a full line of sporting and boating supplies.

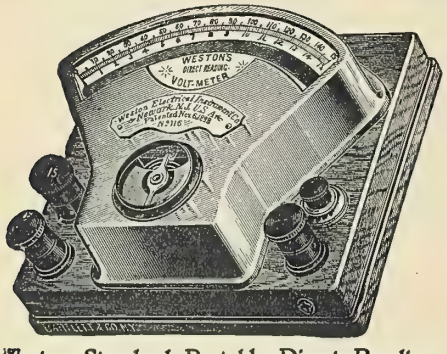
HOLLOW STAYBOLTS.—The increase in steam work has made a great difference in the business of the Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio. One of the latest orders received by the company was for a very large number of these bolts from a leading shipbuilding concern on the Pacific coast.

DECK AND SEAM FILLER.—A tough, elastic and non-shrinking compound, used to fill cracks in decks, seams and floors, is manufactured by the Grippin Manufacturing Company, Newark, N. Y. The claims made for this filler are that it will not break, crack or crumble, is waterproof, but should be protected with paint or varnish. It hardens quickly when applied to a surface that will absorb a portion of the liquid, and is a great saving in labor, as it comes in paste form, and should be applied by the palm of the hand directly to the seams. It is an inexpensive article; one pound is equal to about three pounds of putty.

A NEW ALCO-VAPOR PLANT.—Owing to the cramped quarters in which it has carried on business for some years, the Marine Vapor Engine Co., Jersey City, N. J., has purchased a large amount of property at First and Middlesex streets, Newark, N. J. The new property gives a frontage of 25 ft. on the Passaic River, and the company is now building a very much larger plant than it heretofore had, so that it will be in condition hereafter to handle all orders promptly. The growth of this company has been marked, as within the past two years it has on two occasions doubled the capacity of its establishment.

BALL-BEARING BUSHINGS.—Owing to the steady demand for Parkin Ball-Bearing Bushings, manufactured by the Pennsylvania Block Co., 2049 North Second street, Philadelphia, Pa., this company incorporated with a capital stock of $50,000 with the privilege of increasing to $100,000. This action was taken because of the great increase in business caused by the demand for ball bearings for so many uses. The plant of the company will be very largely extended at once, so that they can go into the manufacturing of freight trucks, tramway, trolley and vehicle wheels. Within the past thirty days, orders have been received for 35,000 wheels.

KENWOOD STEAMER RUG.—The well-known Kenwood steamer rug manufactured by F. C. Huyck & Sons, The Kenwood Mills, Albany, New York, is widely used by travelers. As a covering when sitting still in a low temperature nothing has been found to compare with its soft napped woolen fabric. It gives warmth with every inch of its surface, and is light and soft and cannot be disarranged. The only objection to the Kenwood rug ever suggested is that after the traveler returns it cannot be used for a lounge cover. The rugs are now finished in such a manner that they can be easily opened at the bottom and a square rug made, which can easily be closed again into the bag shape of the Kenwood rug. A catalogue is issued by the mills fully illustrating and describing this rug, with the many other specialties manufactured by them.



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Our Portable Intruments are recognized as **THE STANDARD** the world over. Our **VOLTMETERS** and **AMMETERS** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,
114-120 William St., NEWARK, N. J., U. S. A.

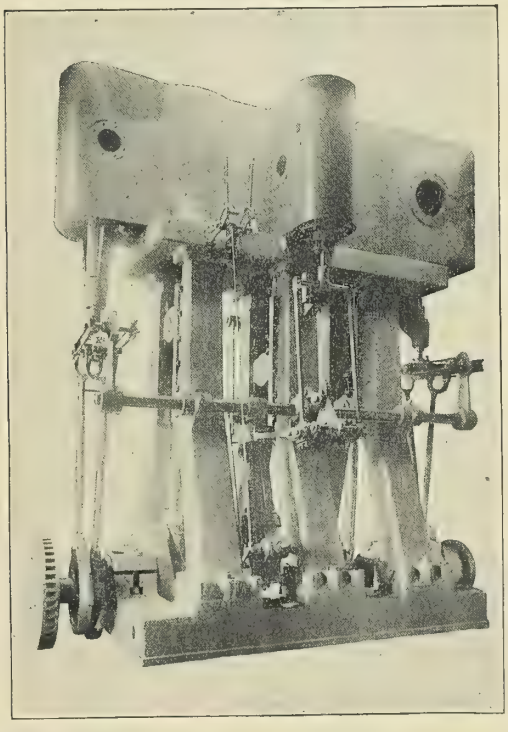
OIL CLOTHING.—Users of oil clothing will want to have a copy of the price-list just issued by A. J. Towner, Vernon & Simons streets, Boston, Mass. This concern makes a full line of oil clothing and slickers and is the manufacturer of the well-known "fish" brand.

ASHTON VALVE COMPANY.—Mr. H. A. Freeman, formerly connected with the Chicago house of the Ashton Valve Co., has been appointed assistant manager of the New York branch of the same company, located at 121 Liberty street. Mr. Freeman's successful experience in the past as a practical mechanic, engineer and salesman, makes him well fitted to cater to the trade in the New York territory. The Ashton Valve Co.'s business the past year has grown to such an extent that it has necessitated a large amount of night work in its factory. To offset this, and yet be in a position to satisfactorily fill the constantly increasing demand for its goods, the company has decided to enlarge the factory by the addition of another story, giving five floors instead of four. With these increased facilities and the addition of improved machinery, it will shortly be in a position to turn out at least one-third more than has been possible in the past.

TREASURY DEPARTMENT,
WASHINGTON, D. C., January 16, 1900.

SEALED PROPOSALS are invited and will be received at this Department until 2 o'clock P. M., Wednesday, February 28, 1900, at which time and place they will be opened in the presence of attending bidders, for the construction of one steel steam propeller for the U. S. Revenue Cutter Service, for duty on the Great Lakes, to be known while in course of construction, or until launched, as "No. 7, R. C. S." Said vessel is to be constructed in accordance with the plans and specifications provided by the Secretary of the Treasury, which, together with form of proposal, contract, etc., may be obtained upon application to this Department. Bids must be addressed to the Secretary of the Treasury, and be endorsed on the envelope "Proposal for Revenue Steamer for Great Lakes." The right is reserved to reject any or all bids, and to waive defects if deemed for the interests of the Government so to do. O. L. SPAULDING, *Assistant Secretary.*

THIS IS THE KIND OF AN ENGINE WE BUILD.



SHERIFFS MFG. CO.,
Milwaukee, Wis.

BLOCKS AND SHEET LEADERS.—Yachtsmen and others who have occasion to use blocks, sheet leaders, etc., will be interested in the several specialties new this season in the stock of Walter Coleman & Sons, Providence, R. I. Illustrated circulars regarding these blocks are issued by the company.

HANCOCK INSPIRATOR OFFICES MOVED.—The Hancock Inspirator Company, which manufactures the Hancock Inspirator, the Loftus automatic injector, ejectors and general jet apparatus, has moved its general office and salesrooms from Boston, Mass., to 85-87-89 Liberty street, New York city. It is the desire of the company that all inquiries, correspondence, orders and remittances be addressed to the new location, as this will insure prompt reply and greatly facilitate the quick filling of orders. This inspirator has been in the market for twenty-two years, during which time the company says it has made and sold 230,000.

CIRCULATORS AND STEAM JETS.—The business of H. Bloomsburg & Co., Newport News, Va., has been far greater during the past year than ever before in the history of the company. During the month of December, the business of the company included circulators for eight boilers and orders for thirty-four more boilers, with several other orders in prospect. During the month of January this record was equalled, so that the record was brought up to fifty boilers. Among vessels for which large circulators were furnished were the Porto Rican steamers *Ponce* and *San Juan*, which were described in our editorial pages. Several new vessels under construction at the Harlan & Hollingsworth yard will also have Bloomsburg circulators, among the vessels being the Windsor line steamer *Grecian* and the two tugs which have been under construction at Bath, Me., will have these circulators. Several orders have also been filled lately on the Pacific coast, both on this side of the line and the other. The demand for Bloomsburg jets is steadily increasing until now sixty-seven are in use against one hundred and six circulators.

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VOLUME IV.

July to December, 1899, inclusive

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Delivered to any part of the Postal Union

Aldrich & Donaldson,

309 Broadway, New York.

BOOKS FOR ENGINEERS.—A series of books for engineers is published by Theo. Audel & Co., 63 Fifth avenue, New York. There are five of these books covering fields in engineering work, including electricity, boiler-room practice, and steam engineering. A small catalogue is issued giving some details of what these books contain.

AMERICAN STEAM GAUGE CO.'S REMOVAL.—Owing to the great increase in the amount of business, the American Steam Gauge Co., Boston, Mass., has found the quarters it occupied so many years on Chardon street altogether too cramped. A very complete plant has been under course of construction on Boylston street, in Jamaica Plain, Mass. The new establishment will give more than double the capacity of the one previously used, and it is equipped with all the very latest appliances for carrying on the business. As the company is now pretty well settled in its new works, it is in shape to fill all orders promptly for gauges, valves, and its many other specialties.

THE SCRANTON SCHOOLS.—The rapid growth and remarkable popularity of schools of correspondence prove that this new system of education meets a distinct want. Starting about ten years ago with a single course in mining, the International Correspondence Schools of Scranton, Pa., have developed so rapidly that they now teach by mail over seventy courses and have over 130,000 students on their rolls. Most of the students are residents of this country and Canada, but the schools have a large following in foreign lands. Students in twenty of the Mexican States are enrolled in the schools, and almost as many European countries are represented. That no country is too remote to be reached by the correspondence school is shown by the records of students in South Africa, Australia, Tasmania, Siam and Korea, who are successfully educating themselves through the courses of the International Correspondence Schools.

SPILLING WATER ON A SPONGE. . . Don't lose it. You can get it again. Same with waste oil from the bearings. You could use it over again several times if it wasn't dirty.

THE CROSS OIL FILTER will clean it. Makes it just as good as ever. Saves from 50% to 90%.

Used in the largest steamers afloat.

Sent on approval.
Write for catalogue No. 42.

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Largest manufacturers of Oil Filters in the world.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

CATALOGUES AND PRICE LISTS WANTED.

WANTED—Manufacturers of Engines, Boilers, and Electric Plants to send catalogues and price lists to W. H. Collier, Secretary, Marine Engineers' Beneficial Association, No. 37, 38 Starr-Boyd Building, Seattle, Washington.

SECOND-HAND ENGINES WANTED.

WANTED—One second-hand Compound Condensing Fore and Aft Steamboat Engine, cylinders 14 x 28 x 14, or one second hand Double Steeple Compound Condensing Engine, cylinders 9 x 18 x 24, or approximating these sizes; also one Double Simple Engine, cylinders about 7 x 9. Address

A. C. WADE, Jamestown, N. Y.

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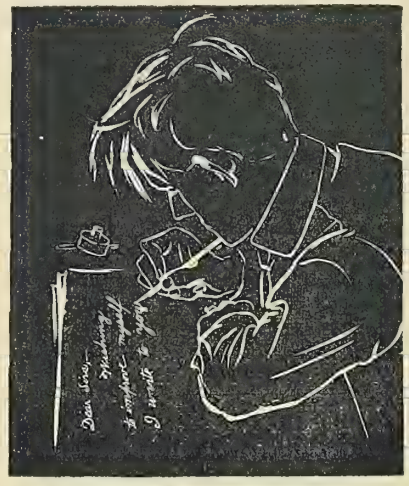
by securing a thorough technical education in your profession. The training will increase your efficiency and **advance your salary.**



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This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

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" 102, CHAS. LA BOUNTY, Box 563, So Haven, Mich.
" 103, C. H. HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss

TRADE PUBLICATIONS.

The Boston Belting Co., 256 Devonshire street, Boston, Mass., issues a folder in which it says: "We submit our case, you are the judge" of the various rubber goods this company makes. It is a neat folder.

A half tone engraving of the yacht *Susanne* makes very attractive the announcement of removal issued by Wilson & Silsby, who are now on the North side of Rowe's Wharf, Boston, Mass., with more ample facilities than heretofore.

Sturtevant four pole motors and generators for direct current have a four-page folder devoted to them as Bulletin S., issued by the B. F. Sturtevant Company, Jamaica Plain, Mass. Half a dozen fine engravings of the motors are given.

A combination blotter and calendar is issued by H. Bloomsburg & Co., Newport News, Va., giving a set of four blotters on each of which there are four pictures of leading steam vessels which use the circulators and jets manufactured by this company.

"Direct Current Multipolar Motors" is the subject matter of Bulletin No. 32a, issued by the Bullock Electric Mfg. Co., Cincinnati, Ohio. The motors are illustrated both as a whole and in some of their special parts, and the descriptive matter is very complete.

A large calendar is issued by the Vulcan Iron Works, Toledo, O., for distribution. It would be particularly appropriate to those of our readers interested in the subject of dredging, as an excellent and very large picture of a dredge forms the principal part of the calendar.

"Some Special Dynamos and Motors" is the title of Bulletin No. 131, issued by the C. & C. Electric Co., 143 Liberty street, New York. A number of illustrations are given which show the separate types. Another Bulletin, No. 132, is also ready for distribution, devoted to the four pole dynamos and motors. Copies can be had upon application.

Compressed cork products, manufactured by the Cork Floor & Tile Co., 17 Milk street, Boston, Mass., are fully described in the catalogue just issued. These products are manufactured for floors and tiles, stair treads and sound proofing materials and other purposes, and would be especially interesting to those who own and operate vessels and yachts.

"Modern Pumping Machinery" is the title of a neat catalogue issued by the Deming Company, Salem, Ohio. It refers especially to the triplex power pumps and other small pumps manufactured by this company which are especially adapted for boiler feeding and other purposes. The illustrations give an excellent idea of the variety of these pumps.

"How to increase your income" is the catchy title of an eight page pamphlet of testimonials issued by the International Correspondence Schools, Scranton, Pa. Some refer to marine work, and the statement from a leading M.E.B.A. representative reports the school to be of much value to marine engineers and very helpful to those who wish to qualify themselves for advancement.

A catalogue of about 100 pages has been issued by the American Iron & Steel Mfg. Co., Lebanon, Pa., describing all its products. Many of the products are of much interest to our readers, such as bolts, nuts, boiler and ship rivets, etc. The various products are completely described and illustrated, and many tables are given regarding size, etc. It is a valuable book for reference.

Steam pumps, manufactured by the Union Steam Pump Company, Battle Creek, Mich., are very thoroughly illustrated in a hundred-page catalogue, which is ready for distribution. The large variety of pumps is well illustrated and the descriptive matter is very complete, making the catalogue altogether a desirable one for reference to anybody who is interested in the subject of steam pumps. Copies can be had by referring to MARINE ENGINEERING.

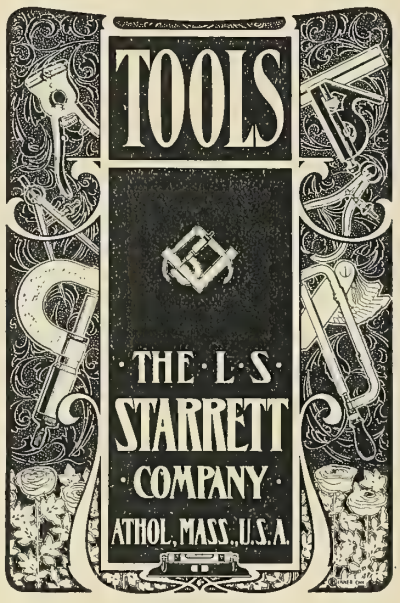
Those of our readers interested in plumbing will want to sand for the pamphlet issued by the Kenney Company, 72 Trinity place, New York, giving a partial list of installations of the Kenney Flushometer system. This list includes many well-known coasting vessels and yachts, both on the sea coast and on the Great Lakes, Government transports, etc., in addition to many buildings.

A supplementary catalogue is issued by the Union Steam Pump Co., Battle Creek, Mich., under the title, "Call of the Hosts." This is not so much a detailed pump catalogue, as it is a talk on the subject of steam pumps and the special features of the pumps manufactured by this company. A number of testimonials are given and the names of many concerns which have been purchasers of these pumps. Like the catalogue, copies can be had by referring to MARINE ENGINEERING.

Centrifugal pumping machinery is to be the specialty of the Erie Pump & Engine Co., Erie, Pa., which succeeds to the business of the Davis-Farrar Co. This machinery has a special catalogue devoted to it, which has just been published. Copies are now ready for distribution. The several varieties of pumps are illustrated and described, and tables are given for information regarding revolutions, capacities, etc. Among the pumps illustrated, are submerged and vertical pumps, horizontal pumps, suction pumps, direct connected centrifugal pumps, dredging pumps, etc.

The catalogue on electric power, issued by the Sprague Electric Company some months ago, was in such demand that a second edition has become necessary. It is now ready for distribution, and those of our readers who were not able to secure a copy of the first issue can now be supplied by writing to the Sprague Electric Company, 527 West Thirty-fourth street, New York. This catalogue comprises over seventy pages and is a choice specimen of the printers' and engravers' work. There is a great deal of detail regarding the Lundel motor and nearly half of the book is devoted to pictures giving application of the motors.

Purchasers and users of machine tools as adapted to shipbuilding work will find a very valuable work of reference in catalogue No. 6 which has just been issued by the Hilles & Jones Company, Wilmington, Del. It is a book of 176 pages, bound in board, elaborately illustrated. There is scarcely a page which does not contain a cut, and as the pages are 9 in. square, the cuts are made very valuable for reference because of their size and excellent quality. The catalogue is issued as the preface says "to supply the demand for heavier and more effective machinery with modern labor saving devices." Pretty much every tool that would be used in a steel shipbuilding plant is illustrated and described. There is a very complete line of punches and shears of all sizes and kinds, and adapted to all purposes. Riveting machines, bending and straightening presses, plate planers, plate bending and flanging rolls, straightening rolls and a variety of other tools.



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GUARANTEED TO DRIVE ⅞ RIVETS IN 10 SECONDS, WITH A CONSUMPTION OF 8 CUBIC FEET OF FREE AIR.

Work Equal to Hydraulic.

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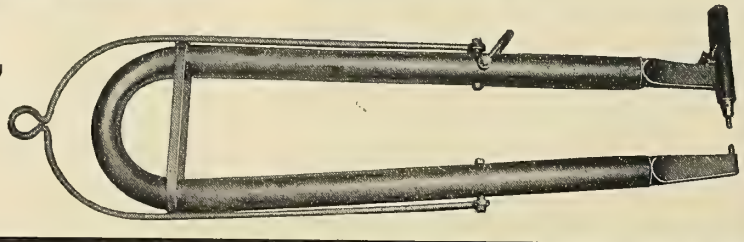

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AND
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Is the title of a little pamphlet that should be interesting to every engineer and to every one interested in better lubrication.

IT IS SENT FREE OF CHARGE.

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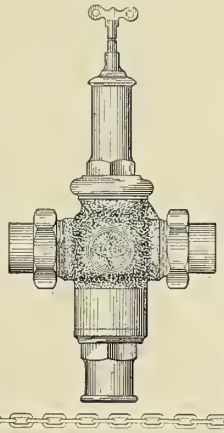

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of perfect regulation and control of steam pressure.

PRICES and PRINTED MATTER ON APPLICATION.

THE MASON REGULATOR CO., *BOSTON, U. S. A.*

Persons interested in pipe joints will want to send for a copy of the catalogue issued by the Gumbo Cement Company, 161 Lake street, Chicago, Ill. This catalogue describes in much detail the Gumbo cement, which is a substitute for red lead and other materials for making tight steam, ammonia, and other pipe joints. A number of reasons are given why this cement is claimed to be better than lead, and some comparative statements regarding cost, etc., are also given. Copies can be had by mentioning MARINE ENGINEERING.

Users of gas engines will be interested in a catalogue issued by the Lake Shore Engine Works, Marquette, Mich., illustrating and describing the Superior gasoline and marine motor. The features claimed for this motor are many, including simplicity, durability and positive action under all circumstances. The general construction of the engine is well shown, and a good many engravings are given of engines of various sizes. Considerable space is also devoted to reversible propeller wheels and to reversing gears. Copies can be had upon application by mentioning MARINE ENGINEERING.

"Belt Type Machines" is the title of a twenty-four page folder issued by the Crocker-Wheeler Company, 39 Cortlandt street, New York, fully illustrating and very thoroughly describing the dynamos and motors manufactured by this company. The pages are nearly 8 by 10 in. in size, giving opportunity for large and excellent engravings and for ample text to accompany them. Considerable attention is also given to starters, resistance, etc., and many sectional drawings are given of the different sizes of machines. Altogether it is a pamphlet that would be of a good deal of value to an electrical man.

"Corks" is the title to a well printed book which has been issued by the Armstrong Cork Company, Pittsburg, Pa. The cover is an excellent imitation of cork, and the text is very neatly printed in two colors and contains many illustrations. There is a detailed description of the manner in which cork is grown and prepared for the market, and much picturesqueness is added by the description of Spanish life and scenery, whence most of the cork comes. Among other subjects discussed is that of making the Acme cork life preservers, which is a considerable part of the business of this company.

A very handsome and complete catalogue, printed in two colors and giving evidence of being business-like all through, is issued by the Daimler Mfg. Co., Long Island City, New York. It comprises over fifty pages which give a great deal of information regarding the Daimler engines and their special characteristics. Many pictures are also given of the large and complete shops in which these engines are manufactured, and of the boat department in which the hulls are made. Many pictures are given of the boats and yachts of different types and sizes from small launches up to yachts of 82 ft. or more. Altogether the catalogue is one that every yachtsman and other persons interested in the subject would find of much value.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON.

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

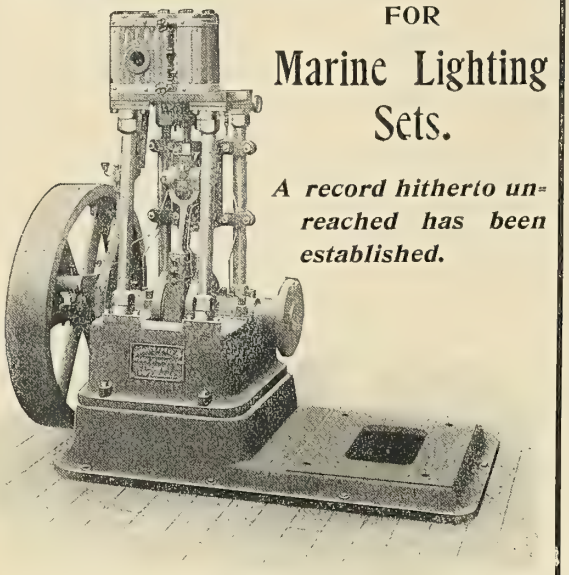
Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

Buffalo Engines

FOR

Marine Lighting Sets.



A record hitherto unreached has been established.

Marine Type Upright. Extended Base for Connection to Generator.

New Engine Brochure on Application.

Buffalo Forge Co., Buffalo, N.Y.

NEW YORK OFFICE: 39 Cortlandt Street.

BUSINESS NOTES.

THE NEW ENGLAND COMPANY.—During the year 1899 the New England Co., Bath, Me., made an exceptional record, as it launched vessels aggregating 19,957 tons.

THE COUSE LUBRICATOR.—The Couse lubricator is manufactured by the Couse Lubricator Co., 42 Dey street, New York. It is illustrated and fully described on a card which is being distributed. On the back of the card is considerable information regarding the practical use of these lubricators.

MACHINISTS' HARDWARE.—Messrs. Charles Besley & Co., 10-12 North Canal street, Chicago, Ill., report a very marked improvement during the past year in the demand for machinists' hardware and other specialties. These include a full line of this firm's manufactures such as taps and die stocks, clamps, Bonanza oil cups and the well-known rust preventative, Mannocitin.

NEW ALCO VAPOR PLANT.—Owing to the impossibility of securing ample water front to enlarge its plant, the company manufacturing the Alco Vapor engines has taken opportunity during the past winter to build a very complete plant at Harrison, N. J., and the name of the company has been changed to the Marine Engine Co. The main building in the new plant is 200 by 100 ft. with a large gallery in which the machine tools are mostly placed. The main floor is used for hull building and every facility for handling boats and engines is at hand, among others being a traveling crane which commands the entire space. In this new location the company has 130 ft. of water front, with a large yard and spur tracks connecting with the Pennsylvania Railroad. With these facilities, the company, in spite of the great number of orders received, has kept up with work, and in addition to a large amount of yacht work, is now building several lighthouse tenders for the Government.

Coal Smoke

Is destructive to lead paints. White lead quickly changes to the dark sulphide of lead in its presence.

White Paints

Or tints based on Zinc White are unaffected by coal gas. Durable tints and shades cannot be made without **Zinc White.**

FREE:
Our Practical Pamphlets,
"The Paint Question."
"Paints in Architecture."

The New Jersey Zinc Co.,
71 Broadway,
NEW YORK.

"HAWKINS' SET," six volumes, price $11.00, on practical steam and electrical engineering will be supplied to the subscribers of MARINE ENGINEERING, on easy monthly terms of payment. Send for description of books and terms. **THEO. AUDEL & CO.,** Publishers, 63 Fifth Ave., New York City.

THE POTTER SEPARATOR.—Every engineer is interested in the subject of dry steam, and will, therefore, probably want to send for the folder issued by the Potter Separator Co., 39 Cortlandt street, New York, which gives considerable information regarding the mesh separator and superheater. This folder tells what it is, what it does, and how it does it, and gives a list of a number of well-known Atlantic steamships upon which it has been installed, the St. Louis having the sixth order.

HYDE WINDLASSES.—Owing to the very large increase in its business the Hyde Windlass Co., Bath, Me., finds its new plant inadequate, although constructed only two years ago and thought to be large enough to meet all contingencies. A new foundry will be constructed at once and supplied with the latest modern appliances. The recent great increase in shipbuilding on the coast of Maine has caused a large demand for the Hyde windlasses, capstans and other specialties.

STIRLING LUBRICATORS.—The Stirling Lubricator Co., Powers' Block, Rochester, N. Y., is putting on the market a new automatic lubricator, which has many special features. It is a gravity feed lubricator and can be adjusted to discharge a specific quantity of oil at regular and defined periods. Some interesting statistics regarding the subject of lubrication are given in a four-page folder issued by this company and any of our readers interested will probably wish to send for a copy.

EAGLE ANVILS.—The Eagle anvils manufactured by Fisher & Norris, Trenton, N. J., have long had a reputation on the market, as this firm has been established since 1843. The special features of this anvil are well brought out in a four-page folder, which has just been published. Among the special features is the double steel surface on both edges of the face. This circular will be of interest to many of our readers.

A FINE RIVER BOAT.—Two carloads of extra choice Douglass fir was recently forwarded from Gray's Harbor, Wash., to the Marine Iron Works, Chicago, Ill. This lumber was used in the construction of a river boat which the Marine Iron Works are building for Mexican parties. It was treated with a special composition which the Marine Iron Works make use of and which they have found to be an effective preservative to wood, especially for boat use.

A USEFUL TRUCK.—The McKinney Mfg. Co., Allegheny, Pa., has met with much success in introducing a truck which is especially adapted for handling heavy barrels and boxes with ease and rapidity. It is claimed for this truck that one man can do the work of three who use the old style of truck. All the parts of the truck are constructed of spring steel and the wheels have roller bearings, which it is claimed make it possible for one man to move a load of 1,000 pounds with comparative ease. Some of the special features of the truck add much to its usefulness.

COLEMAN BLOCKS.—Users of blocks will be interested in a full line of marine specialties manufactured and carried in stock by Walter Coleman & Sons, Providence, R. I. Among this season's specialties are the Twentieth Century Universal swivel sheet holders, which cannot foul and are always swivelled. A folder is issued which describes this. Another specialty is the bridle block, which has a bridle attachment. The new block Beckert can be applied by a boy to any one of the other Coleman blocks with a mailine spike. A pocket memorandum book is sent to all inquirers, which has the title upon it: "What Congress Has Done for the Boers."

NORWALK LAUNCH COMPANY.—Although organized only a few months ago the Norwalk Launch Co., Norwalk, Conn., has been very much crowded and is already contemplating building an addition 30 by 45 ft. to its present shop. This company is offering a design of its own called the "Norwalk Model," which does not follow the ordinary beaten tracks of launch design, and which is intended to be an improvement on the usual type of hull. This model is built full at the bow, without the customary hollowing at the water line and the widest section is a little ahead of midships. From midship to stern is where the difference between the Norwalk Model and other launches is most apparent. Here there are easy graceful lines and great strength without the customary hollowing. The company is well fitted for work, having a large shop with 8¼ acres of land and 200 ft. of water front.

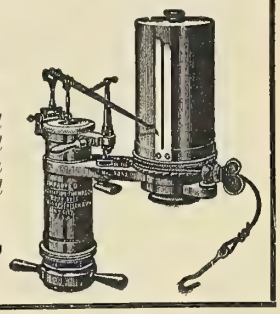
BOILER TESTS.—Those of our readers interested in boiler tests will want to read it in the 1899 report of the Chief of the Bureau of Steam Engineering, U. S. Navy, of the exhaustive tests made of a Babcock & Wilcox boiler, built by the Babcock & Wilcox Co., 29 Cortlandt street, New York, for the *Alert*. Four tests were made and data were taken at twenty-minute intervals. First—time, steam pressure, barometer, temperature of the steam, temperature of the uptake gases, temperature of the air, temperature of the fire-room, draft at base of smoke pipe, draft in back of furnace. Second—records of the weight of water fed into the boiler. The feeding tank was full at the beginning and at the end of the test. Third—records of the coal burned, together with the refuse from the coal and the contained surface moisture. Fourth—records of the tests for quality of steam. The full details of the tests are published in the report, and the results are stated as most satisfactory, the boiler working with good economy under both natural and forced draft.

UNCLE SAM *Knows a GOOD THING. That is why we have had a number of orders from different departments of the service for our*

IMPROVED ROBERTSON-THOMPSON INDICATOR.

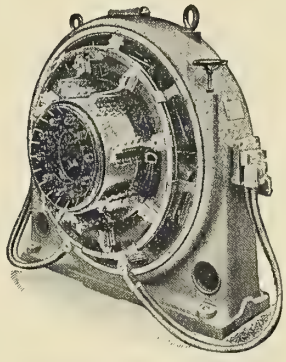
Have You an Indicator?

20,000 Engines are packed with EUREKA. Every naval vessel carries it. Isn't that a good reason why you should try it? There are imitations.



Jas. L. Robertson & Sons,
218 Fulton St, NEW YORK.
Branches: BOSTON, PHILADELPHIA

"Engine-Type" Generators



"Engine-Type" Generator

Westinghouse Electric & Mfg. Co.

PITTSBURG, PA.

The British
Westinghouse Electric & Mfg. Co., Ltd.
LONDON, ENGLAND

74 F.

LARGE ORDER FOR COPPER.—The large dry dock which is being built for the Havana Dry Dock Co., Havana, Cuba, calls for a large amount of copper, and an order was placed with the Benedict & Burnham Co., Waterbury, Conn. It is said to have amounted to $25,000.

CATALOGUE IN PREPARATION.—Manning, Maxwell & Moore, 85-89 Liberty street, New York, have begun work compiling a new catalogue, which shall be devoted exclusively to the illustrating of iron working machine tools. Those of our readers who have any new tools which they desire to have illustrated in this catalogue should communicate immediately with this firm and mark every communication Catalogue Department.

CHICAGO NAUTICAL SCHOOL.—The present season is a most prosperous one in the history of the Chicago Nautical School, of which W. J. Wilson, late Lieutenant U. S. N., is principal. Students are applying to this school from all parts of the country and the correspondence course which has recently been established has proved very popular. This school is situated in the Masonic Temple, Chicago, Ill. A little eight-page folder is sent to all persons inquiring and who desire to take a course in seamanship.

CROSS OIL FILTER.—In a letter to the manufacturers of the Cross Oil Filter, the Burt Manufacturing Company, Akron, Ohio, the president of the Diamond Ice Company wrote as follows: "We are in receipt of your favor of the 29th inquiring if the brass parts in the filter you sold us March 17, 1897, for filtering ammonia oil are still in good condition. We have in reply to say that the filter you have shipped us for use in our ammonia oil has proven to be satisfactory in every particular, in fact to such a degree that we are enabled to recover 95 per cent of the oil used, and that during the past season we were only obliged to purchase for our factory one barrel of ammonia oil. Before we introduced your machine we used about twelve barrels of oil per annum, last year one."

THE PARAGON BOILER.—A circular recently issued by the inventor of this boiler, Capt. M. DePuy, 19 South street, New York, emphasizes the following points as to why this boiler should be used: (1) Its compactness; (2) is of a kind that lasts 15 to 20 years; (3) has unequaled effective heating surface; (4) entire boiler can easily be kept clean; (5) steams rapidly on half the grate surface used in many boilers; (6) has a large surface of water for steam to emanate from; (7) its side and center legs extend from water front to water back; (8) its double furnaces are entirely surrounded by water; (9) no expensive bracing required over fire boxes; (10) a 100 h.p. Paragon boiler has 200 slot openings over side legs, and one-fifth of shell is cut out over center leg, which insures a free circulation of water throughout the entire boiler; (11) no heat is wasted on expensive brick walls or asbestos casing, which requires continual repairing; (12) is adapted for marine service and stationary plants of every description.

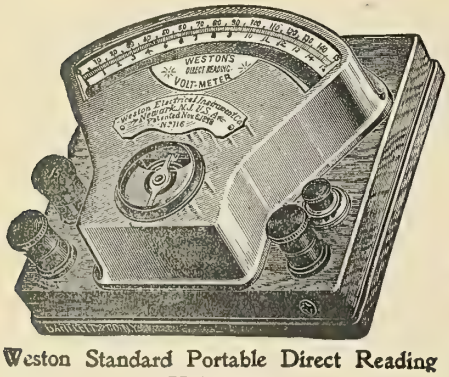
EXTENDING ITS PUMP BUSINESS.—The John H. McGowan Company, Cincinnati, Ohio, which has made a fine reputation for its pumping machinery, has opened warerooms in Philadelphia, which are in charge of Mr. Fred E. Doran, who has been connected with the pump business in Philadelphia for many years, and is very thoroughly known in the trade. The McGowan Co. has recently enlarged its line of pumps so that it covers the field.

AN EXTENDED TRIP IN A LAUNCH.—The launch *Zeta*, which was built and equipped by the Sintz Gas Engine Company, Grand Rapids, Mich., made a very interesting trip lately. She went from New Orleans to Chicago, then from Chicago around to the Great Lakes, to New York, from New York she went down the coast to Florida and then back to New Orleans. The trip was taken by the owner and his wife, family and a cook. The record of the boat on this trip speaks very highly for the qualities of the Sintz gas engine.

CAPE ANN ANCHOR WORKS.—In spite of the inconvenience caused by the fire in this establishment, reported in October, the Cape Ann Anchor Works, Gloucester, Mass., had a new building so far toward completion that by the middle of October it was running full force. The new building is a much larger and finer one than the old, possessing all the facilities and conveniences for doing forging economically, and the company is now in better shape than ever before to handle the increased business.

FLUE CLEANERS.—One of the latest flue cleaners to be put on the market is the Ruggles, which is manufactured by the Werner-Schenck Co., 189 Fifth St., Milwaukee, Wis. In order to make it specially adapted for marine work a flexible handle is used, which is made of galvanized steel wire, 3-4 in. diameter. Thus fitted the scraper can be used in any limited space, the wire taking the place of the jointed rods. Engineers who are interested in the subject can get information regarding this from the manufacturers.

TUG BOAT JAMES WOOLLEY.—The fine new tug *James Woolley* was given a trial trip in Boston harbor quite lately, in a four-hour speed test, and she averaged over 12 knots in a very rough sea. The *James Woolley* was built for the Commercial Towboat Company. She is of wood, and her dimensions are: Length over all, 92 ft.; beam, 18 ft. 9 in.; depth of hold, 9 ft. 6 in. She is of the ordinary towboat type. Below deck forward is the forecastle, with accommodations for seven men. The galley, engine room and cabin are in the deck house. The interior finish of the boat is white pine, except in the cabin and pilot house, where the finish is of California redwood. The engines are of the vertical inverted compound type, with cylinders 14 and 30 in. in diameter and 20 in. stroke. The boilers are of the firebox flue and return tubular type, 8 ft. 4 in. in diameter and 13 ft. long, built for a working pressure of 127 pounds. The Lockwood Company contracted to build the boat, and the hull-work was sublet to R. F. & W. T. Keough.



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WESTON STANDARD PORTABLE

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VOLTMETERS, AMMETERS, MILLIVOLTMETERS, VOLTAMMETERS, MILLIAMMETERS, OHMMETERS, PORTABLE GALVANOMETERS, GROUND DETECTORS AND CIRCUIT TESTERS.

Our Portable Intruments are recognized as **THE STANDARD** the world over. Our **VOLTMETERS** and **AMMETERS** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,
114-120 William St., NEWARK, N. J., U. S. A.

BOATS FOR SOUTH AFRICA.—The Truscott Boat Mfg. Co., St. Joseph, Mich., recently shipped four boats to South Africa on order, and another launch to Australia. In its new factory this company is now in shape to fill orders of all sizes with much promptness.

FOCUSING LAMPS AND STEREOPTICONS.—J. B. Colt & Co., 404 East Thirty-second street, New York, announce that they are closing out their stock of focusing lamps and stereopticons, in order to devote their entire attention to the manufacture of Criterion acetylene gas generators.

GRAVITY BOILER FEEDER.—A boiler feeder which works on the gravity system has been introduced on the Mississippi River, and is now being extended to other parts of the country. Circulars explaining the working of the system can be had from the manufacturers, the Gravity Boiler Feeder Company, Little Rock, Ark.

NEW PORTABLE MOTOR.—The Stow Flexible Shaft Co., Philadelphia, Pa., is putting on the market a new portable compressed air motor for driving flexible shafts, portable drills, portable reamers, etc. This motor is fully described and illustrated in a circular which will be sent to all who are interested in the subject.

POP SAFETY VALVE AND MUFFLER.—Users of Pop safety valves and mufflers will be interested in the goods manufactured by the Coale, Muffler & Safety Valve Company, Fidelity Building, Baltimore, Md. These mufflers have been very extensively used on locomotives throughout the country and are now being introduced in the marine field. An attractive catalogue, fully illustrating and describing the several specialties manufactured by this company, is sent to all inquirers.

ALUMINUM PAINT.—A new form of aluminum paint, under the name of Lustrogen, has been prepared for sale as the "marine" brand. This paint has a lustrous surface and is easily applied. Its odor is less disagreeable than that of many paints. It is especially adapted for use on boats, yachts, naphtha and electric launches and vessels of all kinds, light-houses, machines exposed to the continual action of the weather, dynamos, cylinder-heads, pulleys, eyes, bolts, nuts, chains, anchors, metal masts and spars, stays, machinery, hulls, bottoms, and all metal and wood work. It is permanent both in air and under water, also oil and grease proof. It is made by L. H. Austen & Co., 52 Beaver street, New York.

HARLAN & HOLLINGSWORTH YARD.—The S. S. *Grecian* is the fourth ship built at the works of the Harlan & Hollingsworth Co. for the Boston & Philadelphia S. S. Co., familiarly known as the Winsor Line, the others having been the *Indian*, *Spartan* and *Parthian*. She is a three deck freight and passenger steamer, built to rate under the United States Standard for 17 years, has a tonnage of 2483.08; length over all, 290 ft.; between perpendiculars, 263 ft. 2½ in.; beam, moulded, 42 ft.; depth, 36 ft., and will have a draft loaded of 18 to 20 ft. and a carrying capacity of about 2,500 tons. Has four water-tight bulkheads, four hatches, four side ports on each side, four single cylinder Williamson winches, Hyde steam windlass capstan forward and aft, two steel masts, together with steel deckhouse with accommodations for about 100 passengers. Has two electric light plants, 200 lights each, 18-in. searchlight. Inverted triple expansion engines, with four boilers, each with two furnaces built to sustain a working pressure of 170 lbs. Built up cast iron wheel, 15-in. diameter. Ellis & Eaves induced draft; bunker capacity, 275 tons, and is to make a speed of 15¾ knots on eight hours' trial. In addition to this ship the Harlan & Hollingsworth Co. will launch shortly two steamers for the New York & Baltimore Transportation Line, three tugs for the Pennsylvania Railroad, and a ship for the Metropolitan S. S. Co. The Metropolitan S. S. Co. have a sister ship to the *Whitney* on the ways, to be delivered in the early spring, and this is now being rapidly put in frame.

CRUMLISH FORGES.—The Crumlish Forge Co., Buffalo, N. Y., recently moved into new quarters, but finds itself much taxed for space, owing to the sudden and increased demand for forges. For some time past this company has been taxed to its utmost to keep pace with the orders.

USES FOR SMOOTH-ON.—A use for Smooth-on which many people appreciate is that of making leaky castings steam tight. This is done by filling the blow holes, holes and other parts with this composition. Casting so treated can be finished, polished and hammered. This material is manufactured by the Smoth-On Mfg. Co., 547 Communipaw avenue, Jersey City, N. J.

MAHOGANY AND TEAK.—Users of mahogany, teak, cedar and other woods which would be used in yacht and shipbuilding will be interested in the advertisement of the S. B. Vrooman Co., Ltd., 1133 Beach street, Philadelphia, Pa., as this company makes a specialty of these kinds of wood. It furnishes them in the timber, as lumber and in any size to meet the requirements.

THE BARCLAY LUBRICATOR.—Those of our readers interested in the subject of lubrication will be interested in the concise description of the Barclay patent lubricator, which is sent to all inquirers by the Ashton Valve Co., 271 Franklin street, Boston, Mass. These lubricators have been on the market for some time and are already in use on some of the best known steamship and ferry lines.

"THE NEW INDUSTRIAL SITUATION" is the title to a very handsomely published pamphlet with a preface from the pen of George Westinghouse, published by the Westinghouse Companies, Pittsburg, Pa. It refers to the subject of generating power with gas engines. A number of illustrations are given of plants fitted with Westinghouse gas engines, and there is a great deal of information showing the economic value of these plants. Any of our readers interested in the subject will find this publication worthy of careful perusal.

BOUND COPIES

....OF....

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VOLUME IV.

July to December, 1899, inclusive

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Price, $2.50

Delivered to any part of the Postal Union

Aldrich & Donaldson,

309 Broadway, New York.

OIL FILTERS.—The Burt Mfg. Co., of Akron, Ohio, has just completed a shipment of the Cross Oil Filters manufactured by them for the Paris Exposition. These goods are finished especially for their own exhibit and for use in the power house of the U. S. Machinery exhibit there.

A LARGE ORDER FOR BABBITT METAL.—Merchant & Co., Inc., Philadelphia, Pa., have recently received an exceedingly large order for babbitt metal. A large western concern made an exhaustive test of such material of various makes and the result of the test was an order for two carloads of the babbitt metal manufactured by Merchant & Co.

POCKET MAP OF SOUTH AFRICA.—Those of our readers who are interested in the war in South Africa, will be interested in a pocket map, which will be sent to all who ask for it by mentioning this magazine, by Patterson, Gottfried & Hunter, 146 Centre Street, New York. The map is quite complete and is printed in colors.

MILLING MACHINES.—Users of milling machines will be much interested in the advertisement elsewhere of the combined Becker and Brainard Companies, who have united forces and have moved into a large and very completely equipped plant at Hyde Park, Mass. Any information regarding these machines can be had from the company.

THE U. S. PACKING.—The annual meeting of the United States Metallic Packing Co. was held at the office of the company last month, Thirteenth and Noble streets, Philadelphia, Pa., and officers elected for the ensuing year. The annual statement showed that the business of the company was the most satisfactory in its history.

A PARTNERSHIP INCORPORATED.—Notice has been given that the partnership which has formerly existed under the firm name of the Pennsylvania Block Co., has been dissolved and that the company has been incorporated under the laws of New Jersey. This is done in order to increase the facilities of the company for manufacturing.

PNEUMATIC MATTRESSES.—In a booklet issued by the Pneumatic Mattress Co., Reading, Mass., a testimonial is published from the manager of the American Line regarding the pneumatic mattresses used on the steamships *St. Louis* and *St. Paul*. Manager Griscom says: "The mattresses have been very satisfactory, and we will never outfit a steamer with hair mattresses again." Many of the best-known yachts are equipped with these mattresses, and in many cases cushions have been supplied by this company.

TREASURY DEPARTMENT, WASHINGTON, D. C., February 20, 1900. SEALED PROPOSALS are invited and will be received at this Department until 2 o'clock P. M. Tuesday, April 3, 1900, at which time and place they will be opened in the presence of attending bidders, for the construction of one steel steam propeller for the U. S. Revenue Cutter Service, for duty on the Pacific Coast, to be known while in course of construction or until launched as No. 8, R. C. S. Said vessel is to be constructed in accordance with the plans and specifications provided by the Secretary of the Treasury, which, together with form of proposal, contract, etc., may be obtained upon application to this Department. Bids must be addressed to the Secretary of the Treasury and be endorsed on the envelope "Proposal for Revenue Steamer for Pacific Coast." The right is reserved to reject any or all bids and to waive defects if deemed for the interests of the Government so to do. O. L. SPAULDING, Acting Secretary.

We will pay as follows for back numbers of MARINE ENGINEERING.

		1897			
May	advance a subscription			3	months.
June	"	"	"	2	"
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October	"	"	"	2	"
		1898			
January	"	"	"	2	"
February	"	"	"	2	"

The numbers must be ia good condition for binding.

ALDRICH & DONALDSON, 309 Broadway, NEW YORK.

There is nothing so efficient and economical as

Tilghman's Patent Sand Blast Machinery for Cleaning Hulls,

removing scale from castings and metals of all kinds. Send for particulars.

Edgar T. Ward & Son, Boston, Mass.

SAVE THE DROPS

The U. S. Navy Yard

At Pensacola, Fla., and other government plants use

The Cross Oil Filter

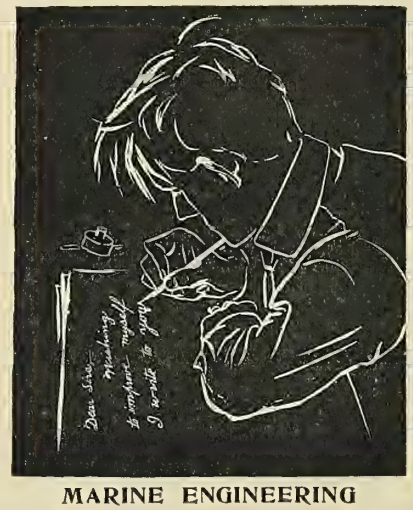
The British and half a dozen other European governments have adopted it. It is used on the largest steamers afloat. Reduces oil bills at least 50%. Sent on approval. Catalogue 42 will tell you how.

Largest Mfr's of Oil Filters in the world.

Burt Mfg. Co., Akron, Ohio, U.S.A.

MAKE THIS WINTER COUNT IN YOUR LIFE

by securing a thorough technical education in your profession. The training will increase your efficiency and **advance your salary.**



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(CHARTERED BY THE COMMONWEALTH OF MASS.)

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Established 1874.

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This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, ROBT. A. NOONE, 498 Swan St., Buffalo, N. Y.
" 2, JOHN B. HEYWARD, 191 Willard St., Cleveland, O.
" 3, JOHN McCLURE, 54 High St., E. Detroit, Mich.
" 4, JAS. A. MACAULEY, 5902 Michigan Ave., Chicago, Ill.
" 5, HARRY P. WALKER, 3111 Dillon St., Baltimore, Md.
" 9, WM. BRIDGES, 784½ 12th St., Milwaukee, Wis.
" 13, SAM'L M. HALL, 2232 S. 5th St., Philadelphia, Pa.
" 15, of New Orleans, La., ALFRED BIRKS, 315 Atlantic Ave., Algiers, La.
" 27, N. P. SLATER, 1010 Garfield Ave., Bay City, Mich.
" 30, JOHN W. FARROW, 427 Pearl St., Pittsburg, Pa.
" 33, W. J. DU BOIS, Tompkinsville, S. I., New York.
" 35, WM. WARIN, 36 East St., San Francisco, Cal.
" 36, JOSEPH THOMAS, 57 Sea St., New Haven, Conn.
" 37, E. D. LOCK, 1304 S. 19th St., Toledo, O.
" 38, W. H. COLLIER, 73 Starr Boyd Building, Seattle, Wash.
" 39, FRANK W. BUCHNER, 124 Chestnut St., Erie, Pa.
" 40, H. N. POWELL, 1626 Ave. N½, Galveston, Tex.
" 41, J. W. COLLYER, Goble, Columbia Co., Ore.
" 43, GEORGE A. MILLER, 828 Wall St., Port Huron, Mich.
" 44, CHRIST DAHL, 534 W. 2d St., Manistee, Mich
" 46, D. W. FARRELL, Clayton, N. Y.
" 47, ARCHIE DE GRAW, 533 Division St., Sault Ste. Marie, Mich.
" 48, JOHN ERVING, 1510 Monroe St., Sandusky.
" 51, DONALD McMILLAN, 105 Fourth St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich.
" 55, ARCHIE STALKER Electric Light & Power Plant, Cheboygan, Mich.
" 57, E. B. MEEKER, 71 Abeel St., Rondout, N. Y.
" 58, GEO. D. ANDERSON, Georgetown, S. C.
" 59, WALTER M. MILLER, 221 Saratoga St., E. Boston, Mass.
" 62, NATHAN S. LAWRENCE, 30 Connecticut Ave., New London, Conn.
" 65, WM. McCARREL, 8 Vernon St., Charleston, S. C.
" 67, WM. S. BRADLEY, Saugatuck, Mich.
" 70, FRANK H. GOODELL, 406 Bond St., Astoria, Ore.
" 72, THOMAS NAVAGH, 40 Lake St., Oswego, N. Y.
" 73, E. B. KELLOGG, 711 W. Walnut St., Green Bay, Wis.
" 76, ORSON VANDERHOFF, Grand Haven, Mich.
" 77, JOS. WEBER, 820 Buffalo St., Manitowoc, Wis.
" 78, F. A. REHDER, 29 W. Superior St., Duluth, Minn.
" 80, R. P. COOK, 46 Elm St., Albany, N. Y.
" 81, JAS. L. SWEENEY, 204 E. Saragossa St., Pensacola, Fla.
" 82, FRED H. GOWELL, 4227 Middle St., Bath, Me.
" 84, N. K. LUDLOW, 12 St. Joseph St., Mobile, Ala.
" 85, ARTHUR J. IRWIN, 427 Washington Ave., Alpena, Mich.
" 86, SHERMAN A. SMITH, 412 Terrace Ave., Marinette, Wis.
" 87, GEO. B. MILNE, 1003 Trumbull St., Detroit, Mich.
" 88, C. O. CHAPMAN, S. B. Canal, Sturgeon Bay, Wis
" 89, GEO. A. TATE, 141 North Water St., Ogdensburg, N. Y.
" 91, MARTIN JOYCE, 8 Spruce St., Harbor Sta., Ashtabula, O.
" 92, JOSEPH D. BUDD, P. O. Box 50 Saginaw, E. S., Mich.
" 93, CHAS. W. ROBINSON, McGill Building, Washington, D. C.
" 94, GEO. R. JONES, Box 222, Washington, N. C.
" 101, J. C. BILLUPS, Ave. A, Atlantic City, Norfolk, Va.
" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H. HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

A pocket map of South Africa is sent to all inquirers by the Durable Wire Rope Co., 234 State street, Boston, Mass., who mention MARINE ENGINEERING. This is especially timely, as it shows on a large scale the seat of the war.

A small calendar in the shape of an envelope, with a celluloid binding, is sent to all inquirers by the American Steam Pump Co., Battle Creek, Mich. It is one and one-half inches in size, and among other features it has oiled paper, making it valuable for carrying postage stamps.

A neat calendar containing an excellent lithographed picture of its factory is issued by the American Steam Pump Company, Battle Creek, Mich. There is also an excellent picture of the Marsh pump. The calendar is eight by ten inches in size, and has a silk cord all ready for hanging up.

The C. & C. Electric Co., 143 Liberty street, New York, has issued two pocket-size booklets, which will interest many of our readers. Booklet A gives some of the purchasers of this company's multipolar generators and dynamos. Booklet B some of the electric light and power transmission plants which this company has started.

Rainbow packing, manufactured by the Peerless Rubber Mfg. Co., 16 Warren street, New York, has a twenty-four page catalogue of pocket size devoted to it. This catalogue is printed in red and blue, and takes up the subjects in turn of the various types of packings manufactured by this company. Copies can can be had for the asking, by referring to MARINE ENGINEERING.

The New England School of Engineering, 121 Haverhill street, Boston, Mass., has ready for distribution a neat pamphlet describing the advantages of this school. As stated in the text, these advantages not only include instruction by practical men, but opportunities to examine, take apart and put together a large variety of engines, pumps, etc., which are used especially for such purposes in one department of the school.

Lozier motors and launches have a very artistic catalogue devoted to them issued by the Lozier Motor Company, Toledo, Ohio. A number of pages are used in describing, in considerable detail, the special features of the motors, and following this are a number of pictures of the different styles of launches and boats which are furnished when desired. This feature of the catalogue is quite complete.

Smooth-on compound for shipbuilders, engineers, machinists and others is fully described in a new catalogue just issued for distribution. It comprises thirty-two pages, and contains much valuable information on the subject. The process for making this compound is explained, and its uses are thoroughly gone into. There are also a number of testimonials given from people who have found Smooth-on of much value. There is scarcely a reader of MARINE ENGINEERING who will not find this catalogue well worth reading. Copies can be had from the Smooth-On Mfg. Co., Jersey City, N. J.

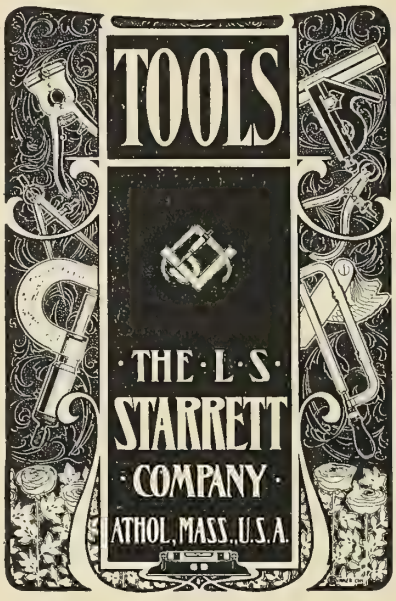
Steam jet pumps manufactured by the E. W. Vanduzen Company, 104 East Second street, Cincinnati, Ohio, are fully described in catalogue No. 62, which is now ready for distribution. This catalogue comprises about fifty pages, and contains a good deal of valuable information regarding these pumps. Many references are given by users of the pumps, showing "why our pumps will work." A number of illustrations show the construction of the pumps, and there is much detail regarding the material used, capacities, steam pressures, etc. Several pages are also devoted to the other specialties which this company manufacture, such as brass syphons for steamboats, barges, and for drainage pumps. A large illustration of an application of the pump on board a steam vessel is given, and several pages are filled with hints for users of the pumps.

Users of varnish will be interested in a pocket memorandum book in diary form, which is sent to all inquirers by the David B. Crockett Company, Bridgeport, Ct. In addition to a complete diary for the year there is much valuable information regarding the value of foreign coins and a concise statement of stamp taxes and what documents it is necessary to use stamps on, together with much information which people should have at their finger points, such as hints in case of accident or drowning, postage and money order rules, weights and measures, etc.

The Sturtevant generating sets were quite fully described in a folder issued some months ago. The demand for these folders was so great that the edition was soon exhausted, and it has now become necessary to issue a third edition. This edition has been brought up to date, and it makes an unusually valuable one on the subject of direct connected electric plants. Sets of various sizes are illustrated and described from the little compact twenty-five light set to the larger one of seventeen hundred or more lights. Any of our readers interested can have a copy of this edition, by mentioning MARINE ENGINEERING, and writing to the B. F. Sturtevant Co., Jamaica Plain, Mass., for Bulletin G.

Two very artistic pamphlets, 3 1-2 by 6 in. in size, have just been issued by the Boston Belting Company, 256 Devonshire street, Boston, Mass. The one devoted to packing is very neatly printed in two colors, red and gold, and comprises over forty pages. These pages are very fully illustrated in a most excellent manner, and are devoted exclusively to the subject of the various kinds of packing manufactured by this company. The description is sufficient to completely and well explain the various kinds of packings referred to. The second booklet is bound in a sage green cover, and is devoted to the subject of hose, both cotton and rubber, and the various attachments used.

The Dearing water tube boiler is well illustrated and described in a catalogue which has just been issued. As stated in the introductory, this boiler has been in practical use for seven years, and a number of testimonials are given speaking in high terms of this boiler by those who have used it. Several distinctive features of the boiler are briefly referred to, and following this is a description of the boiler itself. Two illustrations are given showing the manner in which the generating pipes are arranged and their relation to the furnaces and steam drum. Following these are pictures of the boiler, complete with casing and all attachments. Another illustration shows the relative size of the different boilers, one being the number eight and the other the number twenty, the largest size yet made. The construction of the boiler is referred to in considerable detail, and the drum and the frame are illustrated separately, so that the description of these features is made clear. The catalogue is one that will be of interest to those of our readers who care to investigate the subject of water tube boilers.



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Guaranteed to Drive 7/8 Rivets in 10 seconds with an air consumption of 8 cubic feet of free air.

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WORK EQUAL TO HYDRAULIC.
OUR DECK RIVETER IS VERY CONVENIENT.
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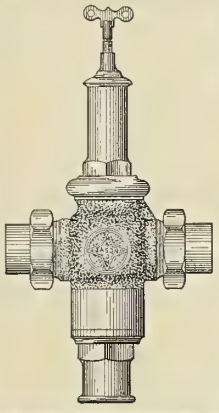

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THE MASON REGULATOR CO., *BOSTON, U. S. A.*

Steam Traps is the title to a sixteen page booklet issued by the William S. Haines Co., 136 South Fourth street, Philadelphia, Pa. As stated on the cover, "this is an interesting little story for any man who has to pay coal bills." The pages are printed in two colors, and there is a good deal of information regarding the subject of steam traps in general, and the Heintz in particular, which is the trap manufactured by this company. Many testimonials are given, which speak in high terms of these traps, which have been introduced in both the marine and stationary fields.

The pneumatic rammer manufactured by the Philadelphia Pneumatic Tool Co., Stephen Girard Building, Philadelphia, Pa., has a neat folder printed in two colors devoted to it. This tool is designed especially for use in foundries, and has many features which will be of interest to those who have use for such a tool. The pneumatic hammers which are manufactured by this company are also illustrated and briefly described in this folder. Other folders also describe the rotary drills and reamers. As pneumatic tools are now very extensively used in shipyard work, many of our readers will be interested to send for copies of this circular.

Users of small motors will be interested in two issues of the *Horseless Age*, 150 Nassau street, New York city. One issue is called the Explosive Motor number. This issue illustrates and describes the explosive motor, and contains much valuable information to anyone who uses a motor of this type for launches and automobiles. The subject is divided into special heads, such as ignition troubles, coils and sparks, vibration, gasoline mixtures, multicylinder engines, etc. Several pages are devoted to discussing explosive motors in detail. This article also occupies ten pages, and is well illustrated. Another issue of this publication is the Steam Boiler number, limiting itself to the small steam plants for motor vehicles, although the matter will probably be equally appropriate to small launches. Each publication is sold for ten cents, postage paid.

River Navigation is the title to a business-like presentation of the matter of river boats "for those who have had a limited experience" in this line of work, issued by the Marine Iron Works, Station A, Chicago, Ill. It comprises over twenty pages, and is a very practical presentation of the subject. It describes light draught, stern wheel and paddle wheel steamboats, more from a business than from a technical point of view, and contains much information of boats varying in length from fifty to one hundred and twenty-five feet. A number of drawings are given of different types and sizes of boats, and much other information is given, making the pamphlet of value to our readers who are at all interested in the subject of river navigation. As the Marine Iron Works have devoted themselves for many years to this line of work and have supplied many boats in South and Central American waters, as well as for use in Alaskan waters, this pamphlet is the expression of long experience.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON.

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

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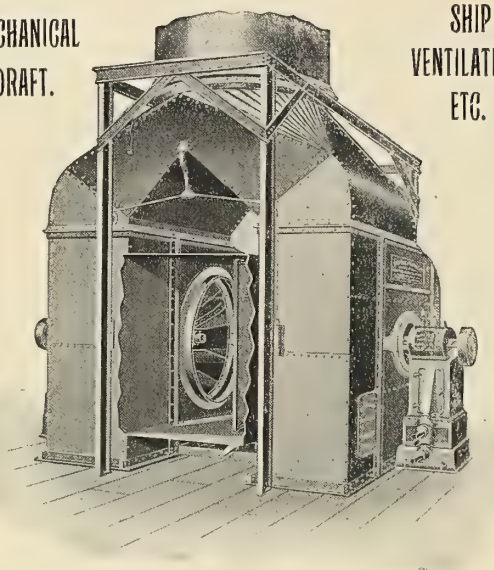
MECHANICAL DRAFT.
SHIP VENTILATION ETC.



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THE WATER TEST.

Nothing is more destructive of paints than moisture. Some paints which will stand heat and cold fairly well quickly succumb to the attacks of rain and fog.

The one essential requirement for paint to be used on vessels is that it shall resist the destructive influence of moisture. If a paint has not this quality, whatever other virtues it may possess are of but little value in marine work, whether it be for vessels, light-houses, or waterside warehouses.

Light, cheerful tints are preferred for vessel painting on several accounts, not the least of which is that blemishes and imperfections show on them more promptly than on darker hues. For this reason, white has long been and will probably always remain the favored color for vessel interiors, especially for passenger boats.

But the "water test," which tries alike the paints used on sea and on land, only more slowly in the latter case, is particularly destructive to white lead—partly because lead absorbs but little oil, and partly because it destroys what it does absorb.

The alternative is constant repainting or the use of another pigment. The ideal white pigment for resisting moisture is ZINC WHITE, either alone or in combination. Durable marine paints cannot be made without it. The United States Light-house Board have convinced themselves of this fact by extended experiment. It will pay vessel owners and shipbuilders to study the Government specifications. The nature and qualities of paints are thoroughly discussed in our two pamphlets—"The Paint Question" and "Paints in Architecture," which will be sent free on request.

THE NEW JERSEY ZINC COMPANY,
71 Broadway, New York City.

ADV.

"HAWKINS' SET," six volumes, price $11.00, on practical steam and electrical engineering will be supplied to the subscribers of MARINE ENGINEERING, on easy monthly terms of payment. Send for description of books and terms. **THEO. AUDEL & CO.,** Publishers, 63 Fifth Ave., New York City.

Users of mahogany, teak, cedar, and other special woods for ship and yacht building will have sent to them upon inquiry a very handsome memorandum pocket-book by the S. B. Vrooman Co., Ltd., 1133 Beach street, Philadelphia, Pa. This is a memorandum-book and pocket-book combined, and there are a few pages of information, which would be valuable, such as what kind of documents require revenue stamps; also important points regarding laws for daily use. As the pocket-book is an exceptionally strong and valuable one, inquirers should use their proper letter heads and mention MARINE ENGINEERING.

A very handsome souvenir of the races between the Columbia and Shamrock is issued by Walter Coleman & Sons, Providence, R. I. It comprises two pictures handsomely mounted on green board. The upper picture is eight by eight inches in size and shows the two yachts under full sail, the Columbia just crawling out from under the Shamrock's lead. The lower picture, somewhat smaller in size, shows the Columbia under full sail forging ahead for the outer mark. The pictures are in two colors and are very excellent. The size of the souvenir is 20 by 12 inches. A charge is made for it by the publishers, Walter Coleman & Sons, Providence, R. I.

Olympia Asbesto Metallic goods manufactured by the C. W. Trainer Mfg. Co., 89-91 Pearl street, Boston, Mass., have an eight page catalogue devoted to them. The several specialties shown include the Olympia asbesto metallic woven sheeting, the construction and special features of which are described, also asbesto metallic woven tapes, asbesto-metallic woven gaskets, and asbesto-metallic piston packings. These specialties are a combination of asbestos and India rubber, with a fine brass wire spun into the warp and weft of the cloth. Directions are also given for using the Olympia asbesto metallic rope packings. Copies of this booklet are now ready for distribution.

BUSINESS NOTES.

MALLEABLE IRON CLAMPS.—Boat and vessel builders will find a large variety of malleable iron clamps described in a circular issued by Hammar & Co., Branford, Conn. These clamps are made in different types and vary in size from two inches to eight inches. The patent clamps have some special features which will attract attention at once.

SET OF COLD CHISELS.—In addition to the set of scraping tools which the Mound Tool and Scraper Co., 712 Howard street, St. Louis, Mo., sells, it is now offering a set of five cold chisels. This set includes a flat chisel, a narrow key chisel, a bent grooving chisel for cutting oil ways in engine brasses and bearings, a diamond-point chisel and a calking tool suitable for calking seams and rivets of boilers.

BALL BEARING TRUCKS.—The Pennsylvania Block Co., 2049 North Second street, Philadelphia, Pa., recently received an order for fifty trucks for the Philadelphia Dryer Machinery Co., and this order has been followed by an order for two hundred and fifty more of the same kind of trucks. An order for one hundred and thirty-six trucks was placed by the Shannon Hardware Co., and now this order has been followed by one for eight hundred more of the same pattern. All of these trucks were fitted with the Parkin Ball bearings, which have been used so extensively in ship blocks and for other uses.

CORRESPONDENCE SCHOOLS.—We are informed that the International Correspondence Schools, Box 1111, Scranton, Pa., though only established nine years, have 160,000 students and graduates. These schools do nearly all of their teaching by mail, and therefore it makes no difference in what part of the world the students live. Many students are employed in the Navy and on ocean going vessels. On the *Olympia*, for instance, we are informed that there were several students. On the Great Lakes the number of students is very large, and along the coast many young men are taking up courses in order to fit themselves to supply the great demand there is for educated engineers. A nautical course is now under preparation and will soon be in shape to accept students.

PARAGON BOILERS.—We are informed by Capt. M. De Puy, 19 South street, New York, that he is having an unexpected demand for his Paragon boilers, and has not as yet been able to keep up with the orders. He is now, however, making arrangements with boiler builders in various parts of the country, and expects soon to be able to fill all orders promptly. Shop rights have just been sold to Walsh & Weidner, Chattanooga, Tenn., who will build these boilers for the Southwestern States, and who already have several orders on hand. The inventor has just received an order for six boilers for marine uses from forty horse power to three hundred. The inventor stands ready at any time to demonstrate the advantages of the Paragon boiler over other patented boilers.

CROSS OIL FILTERS.—One of the largest orders for oil filters has just been placed with the Burt Mfg. Co., Akron, Ohio, who manufacture the Cross oil filter. The order comes from Yokohama, Japan. Two other large orders just received by this company were from the Lehigh Valley Coal Co. for nine filters, and the American Tin Plate Co. is placing the twelfth order. The Burt Co. is so confident as to the many good qualities of its filter that it offers to send one on thirty days' trial, and if the filter does not equal the claims made for it it can be returned at the expense of the manufacturer. A very complete catalogue descriptive of this filter is sent to all inquirers. The Metropolitan Supply Co., of London, England, one of the largest electrical concerns in the British empire, has recently placed an order for four 90 gallon Cross oil filters, and the British government has sent in large orders during the past year.

FRICTIONLESS BEARINGS.—Many of our readers will be interested in the claims made by the Graphite Lubricating Co., 10 Church street., Bound Brook, N. J., for their graphite bearings, which run without oil or grease. A good illustration of what this bearing will do is shown by the following letter from the Moore & White Co., Philadelphia, Pa. This letter says: "In October, 1880, we erected a counter shaft with a friction clutch pulley 15 in. diameter, 8 in. face, 2 2-16 in. bore, running 439 revolutions per minute to drive our dynamo. This pulley was bushed with one of your graphite bushings and has been running continuously ever since, running about eight hours every day, loose on the shaft, as the dynamo has only been used for light. This pulley has not been oiled more than two or three times, and then by mistake, and it apparently is in as good condition as when put up. We would say further that we have used a great many of your bushings and have found them very satisfactory." These bushings are adapted to nearly all uses for which bearings are used, and many of our readers will be interested in the catalogue which tells of them.

BUILD YOUR OWN MOTOR.

Complete Working Drawings of 1 h. p. Jacketless Gasoline Motor in our **EXPLOSIVE MOTOR NUMBER.** 72 pages. Contains many other interesting articles on Gasoline Motors. Price 10 cents—stamps or coin. **STEAM BOILER NUMBER** treats fully of Steam Automobiles. Price 10 cents—stamps or coin. Subscription $2.00 a year; 6 months, $1.00. Foreign, $3.00. Subscribe for a year, from January 1st, and you will get both numbers.

☞ Mention this paper.

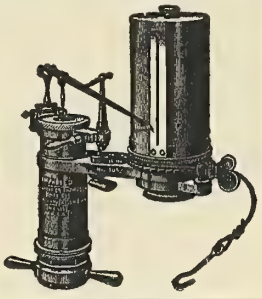
THE HORSELESS AGE, weekly (Estabi'd 1895), 150 Nassau Street, New York.

UNCLE SAM *Knows a GOOD THING. That is why we have had a number of orders from different departments of the service for our*

IMPROVED ROBERTSON-THOMPSON INDICATOR.

Have You an Indicator?

20,000 Engines are packed with EUREKA. Every naval vessel carries it. Isn't that a good reason why you should try it? There are imitations.



Jas. L. Robertson & Sons,

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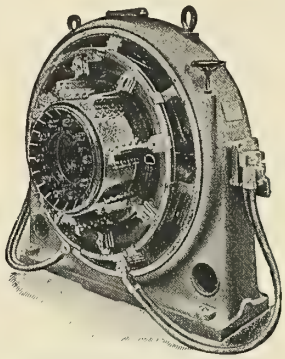
Branches: BOSTON, PHILADELPHIA

"Engine-Type" Generators



"Engine-Type" Generator

Westinghouse Electric & Mfg. Co.

PITTSBURG, PA.

The British

Westinghouse Electric & Mfg. Co., Ltd.

LONDON, ENGLAND

74 F.

Overalls and Coats.—In order to more thoroughly introduce their overalls and coats, Hamilton, Carhartt & Co., Detroit, Mich., offer to send to all inquirers a sample of the cloth of which the garments are made, and a blank for self-measurement, together with a tape measure for measuring. This tape measure is sent free. The goods are sold with the charges for delivery paid. This business, which was started by Mr. Carhartt a few years ago, has extended until it now gives employment to over four hundred operators. The factory is new and complete in all its equipment and offers every facility for the employees to be comfortable. The special claims for the success of this company are well shown in a handsome catalogue just issued, which says, "We have always made honest goods. We have always been honest with our employees."

Pittsburgh Feed Water Boilers.—A charter was granted March 14 under the laws of the State of Pennsylvania to the Pittsburgh Feed Water Heater Co., Pittsburgh, Pa., for the manufacture of feed water heaters, etc. James Bonar, president; J. E. Schlioper, treasurer and general manager, and Joseph Cawley, secretary. The sales department will be under control of James Bonar & Co., Pittsburgh, as heretofore. The company will manufacture both the Pittsburgh Feed Water Heaters and Purifiers, and also the Pittsburgh Tubular Feed Water Heaters. These heaters have been in use for the last six years, and are being adopted by some of the leading steam users. The Carnegie Steel Co., Ltd., alone having installed over 50,000 horse-power, and there being 300,000 horse-power in use throughout the United States. It is the intention of the company to push the sale of these heaters to a greater extent than in the past, and the company is desirous of making connections with different concerns throughout the United States to take hold of this product.

Fire Proofing Wood.—The Underwriters' Bureau of Fire Protection Engineering, in a report on the process of fireproofing wood as treated by the American Wood Fireproofing Company, 11 Broadway, New York, reaches the following conclusions: Extended experiments and tests show that wood treated by this process will not flame or support combustion. The application of an intense heat will cause charring and slow disintegration in a glowing condition with little or no flame. The gradual consumption of wood under such conditions is not conducive to the spreading or conveying of fire, and is entirely local in its effects. Wood subjected to this treatment would appear to retain indefinitely its fire-proofed qualities under conditions ordinarily met with in practice. The electrical insulating properties are not sufficiently decreased to prevent the recommendation of this wood as a material for wire mouldings. The preservative properties of this wood, due to the removal of saps subject to fermentation and the substitution therefor of crystallized salts, renders dry rot and similar conditions improbable.

Standard Thermometers.—The Standard thermometers manufactured by the Helios-Upton Company, Peabody, Mass., are particularly desirable because of the difficulty encountered in reading the ordinary mercurial thermometer. This thermometer is designed and constructed on the latest scientific principles, and the hand placed over the dial indicates the temperature as clearly as the hands of a clock show the time. The figures on the dial are so clear that they can be read a number of feet away. This company has supplied these instruments to a great many steamship lines, and tney are extensively used in the navy. They are made into all sizes, to suit the various conditions.

Ready Roofing.—Many advantages are claimed for the ready roofing which is manufactured by the Asphalt Ready Roofing Co., 136 Water street, New York. As its name implies, the roofing is always ready for use and the process of laying it is so simple, that any man with ordinary mechanical sense can do the work. There is little dirt or rubbish when this roofing is laid, as it comes all prepared to be laid. As asphalt is used it is claimed to be far more durable than would be coal tar. This roofing is suitable for any roof, either flat or slant, and an important feature is that no painting is necessary. Each roll of the roofing has a smooth edge, which runs the entire length, insuring tight joints and enabling the men laying the roofing to know just where the laps are to be made. This roofing is extensively used on buildings in shipyards and on wharf buildings, as it withstands the action of the elements exceptionally well.

The Olds New Plant.—Owing to the great expansion in its business, the Olds Gasoline Engine Works have removed their headquarters from their former shops in Lansing, Mich., to Detroit, Mich., and the name of the company has been changed to the Olds Motor Works. This company began business in 1885 in a little shop 18 by 26 ft. in size. This plant has gradually been extended, but has now been given up for the new plant at Detroit, which is situated on four and one-half acres of ground extending from Jefferson avenue to the river. These shops have 110,000 square ft. of floor space. The machine room alone is 300 by 70 ft., and is fitted with the latest appliances, such as overhead electric cranes, and every possible convenience for turning out engines of the best quality in the shortest time possible. The foundry is equally complete, and is 170 by 70 ft. in size. There are also storage vaults for patents, testing rooms above the shops, and a very large and well arranged warehouse and salesroom. This company devoted itself originally to stationary engines, but has recently taken up the marine type of gas engines, and with its new plant will be able to fill all orders promptly. The Lansing plant will continue to be operated, but only for the making of stationary engines. In the Detroit works special attention will be given to motors for launches and motor vehicles.

WESTON STANDARD PORTABLE DIRECT-READING

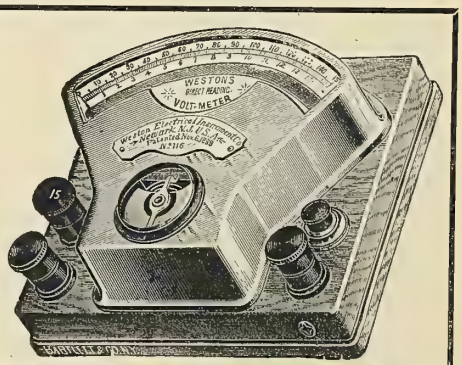
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

NEW YORK BLOWER CO.—The new shops of the New York Blower Co., Bucyrus, Ohio, although designed to be ample for a large increase in business, are now well tested in their capacity. Orders are being filled promptly, however, as night work has recently become necessary. This company makes a full line of heating and ventilating apparatus, such as blowers, exhausters, heaters, engines, etc.

WILSON & SILSBY,

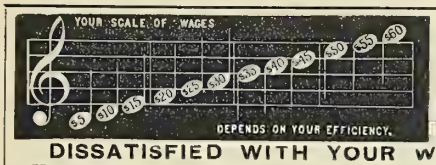
SAIL MAKERS,

Rowes Wharf, - - - BOSTON, MASS.

We have furnished sails to all of the principal prize winners of America, including Genesee, Pirate, Hostess, Heiress, Meemer, Latona, Constance, Ashumet, Hermes, Hildegarde, Constellation.

Also to the four masted schooners Marie Palmer, Maude Palmer, Fannie Palmer, Young Brothers, Henry Sutton, and many others.

We have the largest private sail loft in this country and the best facilities to handle all kinds of work in our line.



A Technical School for Mechanics Chartered by the Commonwealth of Massachusetts

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You can earn more, if you learn more. Don't be contented to hold a subordinate position all your life, when a few hours evening study NOW will fit you for a really desirable position and bring you life-long profit and pleasure.

STUDY

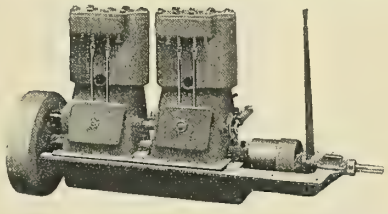
STEAM, ELECTRICAL, MECHANICAL or MARINE ENGINEERING BY MAIL

We have helped hundreds of ambitious men to better positions and better salaries. We can help you. Write for Handbook "O" describing courses and special terms for April.

AMERICAN SCHOOL OF CORRESPONDENCE,
(Chartered by the Commonwealth of Massachusetts)
Boston, Mass., U. S. A.

OLDS MARINE GASOLINE ENGINES

are made in 2, 4, 6, 9, 12, 16 and 30 h.p.



PORT SIDE OF FOUR CYLINDER ENGINE.

OLDS' ENGINES represent the highest type in motors using gasoline. Send stamp for 1900 catalogue just out.

OLDS MOTOR WORKS, *1322 Jefferson Avenue, DETROIT, MICH.*

Stationary Engine Factory at LANSING, MICH.

YACHTS AND LAUNCHES.—Now that the Marine Engine Co. is fully settled in its plant at Harrison (Newark), N. J., it has branched out and is making a special line of steam launches and yachts in addition to the well-known alco vapor launches. The company has every facility for building and designing hulls, and all the work will be done under its own supervision.

QUIGGINS PATENT EVAPORATOR.—A catalogue has just been issued by the James Reilly Repair and Supply Co., 230 West street, New York, describing in much detail the evaporator and distilling apparatus of which this company is a large manufacturer. Regarding the matter of fresh water on board ship, the catalogue says, a fair average requirement for a plant in ordinary good condition is about 3 tons of auxiliary feed water per 24 hours for each 1,000 I. H.P. of the machinery. There are two ways in which the fresh water needed can be supplied—the storage of a supply in special tanks or double bottoms, and distillation from sea water. The former has the objection of increasing the displacement of the vessel and is only applicable, as a rule, in vessels making regular trips between large ports. The latter, when properly arranged, makes ample provision, as long as there is coal to raise steam. It has, further, the great advantage of providing absolutely pure water for drinking purposes, which is a specially valuable feature for naval vessels, yachts, &c., which go to all parts of the world. The distillation of fresh water from sea water necessarily involves the formation of scale, and the evaporator was invented to provide for the supply of heat from steam, instead of hot gases (as in a boiler), so that even when neglected there is no danger of injury to any part of the apparatus, and the removal of the scale is a simple and easy process. The heating surfaces are very accessible, and so arranged as to be easily removed and thoroughly scaled in a short time.

Builders of MARINE ENGINES, Boilers

CHAS. P. WILLARD & CO.

BOAT MACHINERY

Write for Catalogue

43 to 49 South Canal Street, CHICAGO, ILL.

Compound Engines for

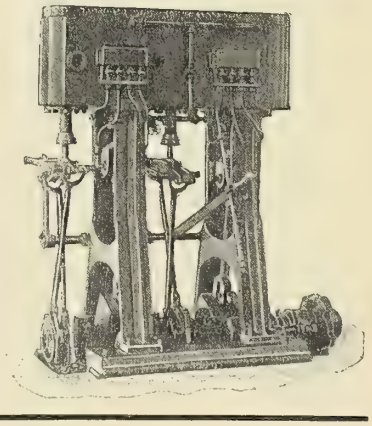
YACHTS, TUGS
and other small vessels.

Simple, Light, Strong.

First-class in every respect. *Prices moderate.*

Nelson W. Twiss,

NEW HAVEN, CONN.



Chapman Valve Manufacturing Co.

Main Office and Works: INDIAN ORCHARD, MASS.

Valves in iron and composition for all purposes and all pressures. Our trade mark in all cases appears on our product. We make a specialty of large composition valves for marine work, and many of the U. S. Battleships are supplied with same.

SEND FOR NEW 1900 CATALOGUE.

OFFICES: New York, Boston, Philadelphia, Chicago, Cleveland, San Francisco, London, Paris and Johannesburg.

NEW PIPE UNIONS.—Users of pipe unions will be interested in a new union which is being put on the market by the A. E. Dart Union Co., Woburn, Mass. By a ball joint arrangement of the flange it is possible to make a tight joint even if the pipes are not in line—in fact, it is claimed they can be 10 degrees out of line and be made tight. The unions are made of steel castings and are quite heavy, having octagonal ends so a wrench can be used.

BALL BEARING JACKS.—Harry A. Norton, representing the firm of A. O. Norton, 167 Oliver street, Boston, Mass., is making an extended trip to Mexico and the Pacific coast, in the interest of the Norton ball bearing jacks. He reports that business is exceptionally good, and has found much interest among shipbuilders in the Norton ball bearing jacks. Mr. Norton is selling not only the smaller size of jacks, which the Government takes it for granted are carried on every steam vessel of any size, but is also meeting with much success in introducing the larger jacks, which would be used in shipyards.

HARLAN & HOLLINGSWORTH YARD.—The Harlan & Hollingsworth Company, Wilmington, Del., is feeling the full effect of the great demand there is for new vessels. During the past few days the company has contracted with C. M. Mallory & Co., of the New York & Texas S. S. Co., for a freight and passenger steamer, the first one of three such vessels. This will be one of the largest vessels ever built for coastwise trade, and the largest ever built at this yard. She will be about 400 ft. long, and is to have a speed of about sixteen knots. The company also has orders for six large steel sea going barges. The Winsor Line Steamship *Indian* is about to be hauled out in the Harlan & Hollingsworth yard to be lengthened 40 ft. Another fine order just received by these builders is for a steam yacht for Charles Fletcher, Providence, R. I., to be 212 ft. long and to have twin screws.

FORCED DRAFT IN YACHTS.—The essential advantages of forced draft on board steam vessels was clearly presented in these columns lately. In connection with this subject the B. F. Sturtevant Co., Jamaica Plain, Mass., make an interesting point aside from the mere question of the weight of steam plants. In a communication it says: Two boilers working under forced draft must necessarily take up much less room fore and aft than four or five boilers working with natural draft. Two large yachts at present building have the same power. One is to obtain the power with natural draft and the other is to use forced draft. If the coal capacity and dimensions of the vessels were the same, the total fore and aft length of their machinery would be 102 ft. in the natural draft boat, against 86 ft. in the forced draft boat, which means that the vessel using forced draft has 16 ft. more room fore and aft to be used for the accommodation of the owner and his guests.

SOFT METAL HAMMERS.—Soft metal hammers which are so extensively used in machine shops and in engineering work have the unfortunate tendency to be used up quickly. In order to make it possible to melt over these hammers and to keep a supply in stock at a minimum cost, Charles H. Field, 254 Chestnut street, Providence, R. I., has met with much success in introducing his combination mould and ladle for casting these hammers. The ladle is attached to the mould, and when the metal becomes molten it is poured into the mould, a simple operation, because of the mould and the ladle being in one piece. The operation is so simple that any boy can do the work. The handle consists of an ordinary piece of pipe forged so as to form a T shaped end. Mr. Field furnishes the articles and sells the complete device for a sum which is very small compared to the value of the product. The ladle can be used for other purposes, such as babbitting bearings, etc. A circular giving a full description of this device is now ready for distribution. It is fully illustrated. Copies can be had by any of our readers upon application.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

DRAUGHTSMAN WANTED.
A draughtsman is wanted for steam engine work. Address with experience and full particulars. STEAM ENGINE, care of MARINE ENGINEERING.

NAVAL ARCHITECT.
A Naval Architect, 34, desires change of position. Is expert in Torpedo Boats and High Speed Steamers, Yachts (both sail and steam). 15 years' experience. Address INDUSTRIOUS, MARINE ENGINEERING.

TO BOILER BUILDERS.
I am putting on the market a patented boiler and have orders for a considerable number of them—which I wish to have built at once. Any boiler builder who is in shape to do work of this kind, please communicate at once with
CAPTAIN M. DE PUY,
19 South St., New York City.

SAVE THE DROPS
ANOTHER WAY
OF LOOKING AT IT.
It keeps things clean about the engine room and machinery.
Saving the drops means no dirty oil waste lying around. Every drop runs through a
CROSS OIL FILTER
to use again as a lubricant. Saves half your oil bills. Your supply man will send you one on approval. Catalogue 42 tells the story.
Largest Mfr's of Oil Filters in the world.
Burt Mfg. Co., Akron, Ohio, U. S. A.

YACHTSMEN'S SUPPLIES.—Those interested in yachts and launches will want to send for a copy of a catalogue on the sporting goods of all kinds, issued by William Wood, 25 West 125th street, New York. The catalogue gives a complete list of yachting supplies of all kinds, such as oars and paddles, canoes, and all the fittings that go with them; row boats, skiffs of all kinds, together with launches, new and second-hand gas engines, etc.

DECK AND SEAM FILLER.—This is the season of the year when on yachts and vessels of all kinds it is desirable to protect wooden surfaces as much as possible. A check and seam filler, manufactured by the Grippin Mfg. Co., Newark, N. Y., is made especially for this purpose. The claim is made that it will not break, crack, shrink, or crumble, and will withstand any action of the elements. It is water proof. It is sold in the form of paste, and is a very desirable article for filling up checks and cracks.

THE SPORTSMEN SHOW.—The Sportsmen Show, which was held in Madison Square Garden, New York, last month, under the auspices of the Sportsmen Association, 313 Broadway, New York, had several exhibits which would be of much interest to our readers in the line of gas engines and launches. Among the exhibitors were the Sintz Gas Engine Company, Grand Rapids, Mich.; Lozier Motor Co., Toledo, Ohio; the Pennsylvania Iron Works, Philadelphia, Pa., manufacturers of the Globe gas engine; Truscott Boat Manufacturing Co., St. Joseph, Mich.; the New York Kerosene Oil and Engine Co., 31 Burling slip, New York, and the Standard Motor Manufacturing Co., 1945 Park avenue, New York. The rest of the exhibits were largely devoted to other sports, such as shooting, ice boating and canoeing. Special features each evening were aquatic sports. This show has now evidently become an annual institution and seems to be more popular each year. The many live animals, game birds and fishes attracted much attention.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION.

Established 1874.

NATIONAL OFFICERS.

GEO. UHLER, National President,
1609 Brown St., Philadelphia, Pa.

FRANK A. JONES, National Vice-President,
1616 La Fayette St., Alameda, Cal.

GEO. A. GRUBB, National Secretary,
1318 Wolfram St., Lake View, Chicago, Ill.

ED. R. BLANCHARD, National Treasurer,
583 Fort St. E., Detroit, Mich.

ADVISORY BOARD.

JOSEPH BROOKS, 6323 Dicks Ave., Philadelphia, Pa.
JOHN McG. STERRITT, 129 Broad St., New York, N. Y.
JAMES H. TAYLOR, 1513 Jefferson St., Baltimore, Md.

This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, ROBT. A. NOONE, 498 Swan St , Buffalo, N. Y.
" 2, JOHN B. HEYWARD, 191 Willard St., Cleveland, O.
" 3, JOHN McCLURE, 54 High St., E. Detroit, Mich.
" 4, JAS. A. MACAULEY, 5902 Michigan Ave., Chicago, Ill.
" 5, HARRY P. WALKER, 3111 Dillon St., Baltimore, Md.
" 9, WM. BRIDGES, 784½ 12th St , Milwaukee, Wis.
" 13, SAM'L M. HALL, 2232 S. 5th St., Philadelphia, Pa.
" 15, of New Orleans, La., ALFRED BIRKS, 315 Atlantic Ave., Algiers, La.
" 27, N. P. SLATER, 1010 Garfield Ave , Bay City, Mich.
" 30, JOHN W. FARROW, 427 Pearl St., Pittsburg, Pa.
" 33, W. J. DU BOIS, Tompkinsville, S. I., New York.
" 35, WM. WARIN, 36 East St., San Francisco, Cal.
" 36, JOSEPH THOMAS, 57 Sea St., New Haven, Conn.
" 37, E. D. LOCK, 1304 S. 19th St., Toledo, O.
" 38, W. H. COLLIER, 73 Starr Boyd Building, Seattle, Wash.
" 39, FRANK W. BUCHNER, 124 Chestnut St., Erie, Pa.
" 40, H. N. POWELL, 1626 Ave. N½, Galveston, Tex.
" 41, J. W. COLLYER, Goble, Columbia Co., Ore.
" 43, GEORGE A. MILLER, 828 Wall St., Port Huron, Mich.
" 44, CHRIST DAHL, 534 W. 2d St., Manistee, Mich
" 46, D. W. FARRELL, Clayton, N. Y.
" 47, ARCHIE DE GRAW, 533 Division St., Sault Ste. Marie, Mich.
" 48, JOHN ERVING, 1510 Monroe St., Sandusky.
" 51, DONALD McMILLAN, 105 Fourth St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich
" 55, ARCHIE STALKER Electric Light & Power Plant, Cheboygan, Mich.
" 57, E. B. MEEKER, 71 Abeel St., Rondout, N. Y.
" 58, GEO. D. ANDERSON, Georgetown, S. C.
" 59, WALTER M MILLER, 221 Saratoga St., E. Boston, Mass.
" 62, NATHAN S. LAWRENCE, 30 Connecticut Ave., New London, Conn.
" 65, WM. McCARREL, 8 Vernon St , Charleston, S. C.
" 67, WM. S. BRADLEY, Saugatuck, Mich.
" 70, FRANK H. GOODELL, 406 Bond St., Astoria, Ore.
" 72, THOMAS NAVAGH, 40 Lake St., Oswego, N. Y.
" 73, E. B. KELLOGG, 711 W. Walnut St., Green Bay, Wis.
" 76, ORSON VANDERHOFF, Grand Haven, Mich.
" 77, JOS. WEBER, 820 Buffalo St., Manitowoc, Wis.
" 78, F. A. REHDER, 29 W Superior St., Duluth, Minn.
" 80, R. P. COOK, 46 Elm St., Albany, N. Y.
" 81, JAS. L. SWEENEY, 204 E. Saragossa St., Pensacola, Fla.
" 82, FRED H. GOWELL, 4227 Middle St., Bath, Me.
" 84, N. K. LUDLOW, 12 St. Joseph St., Mobile, Ala.
" 85, ARTHUR J. IRWIN, 427 Washington Ave., Alpena, Mich.
" 86, SHERMAN A. SMITH, 412 Terrace Ave., Marinette, Wis.
" 87, GEO. B. MILNE, 1003 Trumbull St., Detroit, Mich.
" 88, C. O. CHAPMAN, S. B. Canal, Sturgeon Bay, Wis.
" 89, GEO. A. TATE, 141 North Water St., Ogdensburg, N. Y.
" 91, MARTIN JOYCE, 8 Spruce St., Harbor Sta , Ashtabula, O.
" 92, JOSEPH D. BUDD, P. O. Box 50 Saginaw, E. S., Mich.
" 93, CHAS. W. ROBINSON, McGill Building, Washington, D. C.
" 94, GEO. R. JONES, Box 222, Washington, N. C.
" 101, J. C. BILLUPS, Ave. A, Atlantic City, Norfolk, Va.
" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

The combination mold and ladle for casting soft metal hammers, which is made by Charles H. Field, Providence, R. I., is described in a four page folder which has just been issued. The folder is well illustrated and enough descriptive matter is given to give a good idea of the value of this mold.

The Ball Bearing Company, Watson street, Boston, Mass., has issued a new catalogue which is described as the Twentieth Century Catalogue. It comprises nearly fifty pages and gives a great deal of matter regarding the thrust bearings of various kinds and other specialties in the line of ball bearings which this company manufactures. A list of some of the users of these bearings is also given.

The Peerless Rubber Mfg. Co., 16 Warren street, New York city, has just issued catalogue No. 32. It comprises 136 pages which are printed in red and black and many pages of which are fully illustrated. The typographical work is excellent and from a practical point of view almost everything that can be asked for in the line of rubber goods is illustrated and very completely described. Copies can be had by referring to MARINE ENGINEERING.

The Olds Motors, marine, stationary and automobile, have a catalogue of fifty pages devoted to them. In this catalogue large and excellent engravings of both the Detroit and Lansing works of the company are given. The marine type of engine including the various sizes from the smallest up to the 30 or more horse power is described and illustrated. Several types of launches are also shown and a number of automobiles equipped with engines of this make are illustrated and described.

Valve reseating specialties manufactured by the Leavitt Machine Co., Orange, Mass., are fully described in a 46 page catalogue, which has just been issued. The catalogue is pocket size and is very fully illustrated with pictures of some of the vessels of the Navy which have on board the valve reseating machine manufactured by this company. The pictures of these vessels are excellent and a good deal of information is given regarding these reseating machines, not only in describing their construction, but their manner of operation and the various styles manufactured.

Marine engines, boilers and steamboat machinery of all kinds handled by Charles P. Willard & Co., 43 South Canal street, Chicago, Ill., have a neat catalogue devoted to them. Nearly all of our readers will be interested in this catalogue, as it illustrates and describes quite a line of marine engines, from the small simple one to the large compounds. Considerable attention is also given to the various types of boilers from the small vertical type to the larger Scotch type and to the Willard water tube boiler. This boiler is very well illustrated and several pages are devoted to a description of it. Considerable attention is also given to steamboats and steamboat machinery for use in shallow draft water.

The catalogue for 1900 of the Ashcroft Mfg. Co., 85-87-89 Liberty street, New York city, is composed of over sixty pages and has a complete index and table of contents. The pages are 6 by 9 in. in size and on nearly every page is an illustration taking from one-third to one-half of the space. The many specialties illustrated and described include a large variety of marine goods, such as cocks of all kinds, revolution counters and all other engine and engine room supplies, together with stocks and dies, wrenches, etc. The catalogue is well printed on a good quality of paper and in type of good size; in short, it is an excellent, complete and very handsome catalogue. We have no doubt that any of our readers who are purchasers of any of the specialties mentioned can secure copies by mentioning MARINE ENGINEERING.

A pamphlet describing the paints manufactured by the Goheen Mfg. Co., Canton, Ohio, is being distributed. Considerable information is given regarding the protective qualities of these paints.

Great Western files which are handled by Patterson, Gottfried & Hunter, Ltd., 146 Centre street, New York city, have their good qualities well depicted in a small hanger about 5 by 6 in. in size, which is just issued. It is lithographed in several colors.

An attractive calendar is issued by E. A. Burnside, Point Pleasant, W. Va. At the top of it is a picture in colors of several sheep being guarded by a shepherd dog. Below is mentioned a large number of the marine specialties which Mr. Burnside handles.

Users of gasoline engines for launches will be interested in a catalogue issued by the Rochester Gas Engine Company, Rochester, N. Y. The engines are described in some detail and the style of reversing gear which the company has adopted is also shown.

The machinery, metals, hardware tools and other supplies handled by Patterson, Gottfried & Hunter, Ltd., 146 Centre street, New York city, are very well described in a catalogue just issued. This company handles the products of a number of leading manufacturers and among the specialties described in this catalogue are lathes, milling machines, jacks, etc.

"Evaporating and Distilling Apparatus" is the title to the latest catalogue issued by the James Reilly Repair & Supply Company, 229 West street, New York city. The description gives a very complete idea of the design of the Quiggins evaporator. Distilling apparatus is fully described and quite a little attention is given to condensers, feed water heaters, etc.

Barrow and truck catalogue No. 9 has just been issued by the Syracuse Chilled Plow Company, Syracuse, N. Y. It comprises fifty pages, which are fully illustrated, nearly half of them being devoted to barrows of various types, both wood and steel. A line of trucks such as would be used in wharf warehouses or on board ships is very complete and many styles are shown from the small light ones to the "Hercules" type.

"Do You Know" is the title to a sixteen page booklet, very neatly printed on green tinted paper and bound in heavy red board issued by the Boston Belting Company, 256 Devonshire street, Boston, Mass. It gives a very complete list of the specialties manufactured by this company arranged alphabetically. It is a book that every man should have for reference who has any use for rubber hose, packing and all other rubber goods.

A catalogue and price list for the year 1900 is issued by the Port Chester Bolt & Nut Company, Port Chester, N. Y. It comprises about sixty pages and has a dark green cover printed in gilt. It describes the complete line of bolts and nuts which this company manufactures and gives very complete tables regarding styles, prices, etc. Some attention is also given to the special line of iron work for ship and dock builders and for other such uses, and the company is now establishing a department for doing special work in the line of steam hammer forgings.

"The Work of a Careless Engineer" is the title to an interesting pocket size booklet just issued by the Boyer Sectional Water Tube Boiler Company, 90 Water street, New York city. It describes a very strange accident to a Boyer boiler caused by carelessness on the part of the engineer, it is alleged. Three illustrations are given which show what the result was and in the text it is explained why there was not a very serious loss of life because of the type and construction of this boiler. There is also quite a description of boilers of this type recently installed on steamer *Clara* and a detailed statement is given showing the great advantage to this steamer in changing from the old boilers to the new boilers.

A neat catalogue is issued by the Coatesville Boiler Works, Coatesville, Pa., describing the marine and other boilers manufactured by this company.

Users of varnish will be interested in a very useful souvenir which is being distributed by the David B. Crockett Company, Bridgeport, Conn. It is an aluminum tray for use on desks, for holding pencils, pens, etc.

Compressed air tools manufactured by the Empire Engine & Motor Co., Orangeburg, N. Y., are well illustrated and described in a catalogue now ready for distribution. The catalogue is well printed on coated paper and the tools are illustrated with engravings of considerable size. Among the tools described are drills, reamers, hoists and other tools.

Gas engines, both marine and stationary, manufactured by the Wolverene Motor Works, Grand Rapids, Mich., are fully described in a neat catalogue just issued. These engines range in horse power from the single cylinder, two horse power engine up to the three cylinder, sixty horse power ones. Attention is also given to the launch hulls which this company manufactures.

BUSINESS NOTES.

MARINE PAINTS.—A recent fire destroyed one of the plants in which some of the paints manufactured by George W. Piper, 54 South street, New York city, were stored. Fortunately Mr. Piper had on storage elsewhere a large supply of paints, so that in spite of all reports to the contrary he is able to supply all orders without any delay.

AMERICAN STOKERS.—Now that some of its stokers have been introduced into steamship work and have proven themselves efficient, the American Stoker Company has found it necessary to give more careful attention to marine work, and has organized a special department in this line. Larger quarters have become necessary, and the company has moved to offices in the Bowling Green Building, 11 Broadway, New York.

DURABLE WIRE ROPE.—A new style of rope for rigging, hawsers and for other purposes, which is being introduced by the Durable Wire Rope Company, 288 Congress street, Boston, Mass., has met with much success for marine uses. This rope is made of a combination of manila and wire, giving strength, lightness and durability. Many points are claimed over galvanized wire rope, not only because the cost is considerably less, but because this rope is very much more durable and is rust proof and water proof. It can be used in any application where ordinary manila rope can be used, and there is no galvanizing to crack or chip off. A neat pamphlet describing this rope and giving much information about it is sent to all inquirers.

A GOOD TEST FOR PACKING.—The U. S. Army Transport *Thomas* before she sailed from New York last December had metallic packing fitted in her engines by the U. S. Metallic Packing Company, 13th and Noble streets, Philadelphia, Pa. The steamer reached San Francisco March 1, after completing 22,000 miles with forty-eight actual steaming days. Upon reaching port Chief Engineer Arthur G. Rose sent a letter to this company, signed also by the first and second assistants, containing the following statement: "We left New York November 4 for Manila and touched in ports only for coal, arrived at Manila December 23. In Manila, I examined packings ('clearance') and found them scarcely worn and all were replaced as they were. Up to the present time we have had no trouble with hot or leaking piston-rods or valve stems, and less swabbing and oil have been required."

DROP FORGINGS.—Users of drop forgings of all kinds will be interested in a line of such goods offered by the Springfield Drop Forging Company, Springfield, Mass. This company makes a regular line of wrenches of all kinds and sizes, and it has recently doubled its facilities, so that it is now equipped and especially fitted to do work of all kinds. Among the specialties which it devotes attention to besides wrenches is engine work, such as crank shafts and other parts which require to be carefully made to scale and finish.

OLIVER WOOD TRIMMERS.—The American Machinery Co., Grand Rapids, Mich., reports an excellent demand for the Oliver wood trimmers in yacht and shipbuilding establishments of all kinds. These trimmers are made in various styles and sizes. Sheets containing illustrations of the different styles of trimmers and the manner of using them are now ready for distribution. These trimmers are used by most of the leading concerns in the country which have anything to do with wood work.

BERTH MATTRESSES.—A full line of woven wire mattresses and other fittings for steamer berths is manufactured by the Hartford Woven Wire Mattress Company, Hartford, Conn. The mattresses which this company manufactures have stood the test of many years of use and are made to suit all sorts of conditions. This company manufactures the standard style of wooden frames, which has been in use so many years, and has recently offered a line of metal frames for such mattresses made plain or ornamental as desired. These mattresses are in all marketable lengths and widths.

SIGNAL AND ALARM BELLS.—A neat pocket size catalogue is issued by the E. W. Vanduzen Co., Cincinnati, Ohio, regarding the bells of all types which it manufactures. Each style of bell is illustrated and briefly described. Accompanying this description is a table giving weights and prices. Among the several types of bells referred to are fog bells, which have been extensively introduced on the rivers and lakes as well as on the sea coasts. These are fitted to be placed on cabin roofs or elsewhere. Signal or alarm bells which are suspended by a bracket can be bolted to a mast or side of a cabin, making them very desirable for sailing vessels, yachts, tugs, barges or ferry-boats. Smaller sizes of bells are such as would be used in engine-rooms and on small sailing vessels. A full line of steamboat bells with the sheaves and other fittings is also described.

MASON IMPROVED STEAM PUMPS.—A detailed description is given in the catalogue recently issued by the Mason Regulator Company, 6 Oliver street, Boston, Mass., of the Mason improved steam pump. In this pump the action of the valves is such as to maintain a continuous motion of the steam piston, thus avoiding what is termed a dead center and rendering the pump absolutely positive in its action. This positive action is brought about in a very novel and ingenious manner. It consists of two ordinary D slide valves, one called the preliminary valve and the other the main and auxiliary valve combined, both working on the valve seat of the main steam cylinder, side by side, and receiving their motion by a yoke, connected to the valve stem by means of a collar and T slot, this yoke sliding in a race-way contained in the steam chest. The duty of the main valve is to alternately admit and exhaust steam to and from the main steam cylinder, in the usual manner, and also to control an auxiliary port. This single auxiliary port, being made common to both ends of the auxiliary cylinder, through the action of the preliminary valve, which acts as a switch, alternately connects the single auxiliary port to either end of the auxiliary cylinder. It will be seen from this that only one active auxiliary port is required, the others being inactive and only serving as passages, thereby permitting one auxiliary port to work in common with either end of the auxiliary cylinder.

A GENERAL SUPPLY COMPANY.—Mr. R. F. Manning, who has been well known for several years in the machinery and supply trade in New York, has organized a general supply company at 40 John street, where he will carry a large line of machinery and supplies.

NATIONAL AUTOMATIC LUBRICATORS.—A neatly printed booklet, pocket size, is issued by the National Lubricator Co., 255 Pearl street, Albany, N. Y. The special points claimed for these lubricators are less chances for the glass to break, the large diameter of the glass, no valves to need attention, an automatic device which shuts off pressure immediately should glass break, the replacing and adjustment of the glass with a single adjusting bolt and the cleaning of the glass at any time by the simple turning of a screw.

CORRESPONDENCE INSTRUCTION.—The value of correspondence instruction is shown in the following letter, written to the American School of Correspondence, 156 Tremont street, Boston, Mass., by graduate E. M. Barber, who is chief engineer of the Boston Towboat Company. In this letter Mr. Barber says: "In regard to your school, I would say that it is one of the finest in the country. I can now sit down and figure any of the several strains, which I was unable to do before and can learn the pressure on parts that I did not know."

FEED WATER HEATERS.—A recent chief engineer of the steamer *China*, plying on the Great Lakes, wrote to Robert Learmonth, 200 Lafayette avenue, Buffalo, N. Y., as follows: "The purifier placed on the boiler of the steamer *China* has proven highly satisfactory. I cleaned the boilers but twice last season, and did not find as much mud as formerly, when cleaned once each month. I consider it of great benefit too, on account of its producing a high temperature to the feed water, causing a more even expansion and contraction on all parts of the boiler."

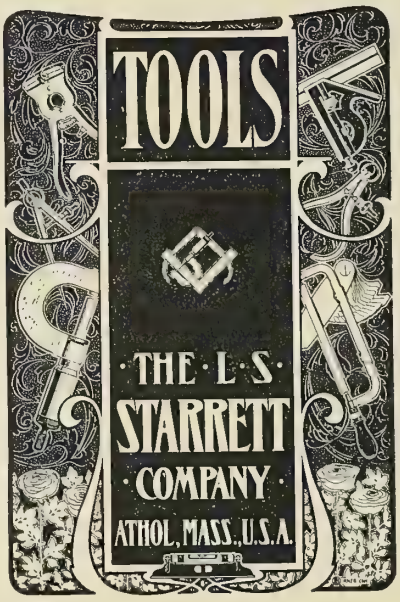
THREE WHEEL PIPE CUTTERS.—The Barnes Tool Company, New Haven, Conn., manufactures eight sizes of three wheel pipe cutters. They can be used for cutting pipes from one-eighth of an inch to twelve inches in diameter. These cutters are not new on the market, having been offered for several years and are now well known. Special care has been given to their manufacture and the especial claim made for the three wheel pipe cutter is that it can be used in corners where single wheel cutters would be useless. This feature makes it also preferable for bench work as it works quicker and more easily, thus saving both time and labor. A very complete catalogue is published by the Barnes Company, giving full details, with illustrations of the several pipe cutters, also the pipe wrenches and other specialties manufactured by the company.

THE FAULTLESS COTTON-FELT MATTRESS.—A mattress especially designed for use on yachts and vessels is being introduced by H. L. Dougherty & Co., 11 North Eleventh street, Philadelphia, Pa. It is called the "Faultless" cotton-felt mattress. It is especially free from the recognized discomfort caused by vermin. This advantage results from the material being purely vegetable and without any animal product, there being thus an absence of animal nutrition. It is particularly well adapted for use on steamers, sailing vessels, and generally on board ships. The price is very low and the mattress itself, so it is claimed, will bear comparison with that of high-priced hair mattresses. The composition is not simply cotton, but cleaned, carded, interlaced cotton-felt, and being non-absorbent will not mildew. The assurance is given that the mattresses will be found to be odorless, always sweet and clean. They will not mat, nor become lumpy, as they are made as perfect as possible by the use of excellent machinery. The manufacturers supply cotton-felt goods, from small cushions to mattresses for entire vessel outfits.

KIRBY LUBRICATORS.—In addition to its shipbuilding business, the Detroit Shipbuilding Co., Detroit, Mich., operates a large factory in which it manufactures a line of supplies for marine work, and among these specialties are the Kirby lubricators. A catalogue is devoted to this special subject and gives excellent engravings of the various types of lubricators, with a complete detailed description of each. They include various types of lubricators for engines and pumps, also hand oil pumps.

THRUST COLLAR ROLLER BEARINGS.—Considerable attention is given in the new catalogue issued by the Ball Bearing Co., Watson street, Boston, Mass., to the thrust collar roller bearings now being put on the market. The catalogue states that "they are theoretically wrong, practically right." A large illustration similar to the one in the advertisement of this Company elsewhere shows the construction of the bearings. These bearings have been thoroughly tested in heavy duty for two years and in places where enormous pressures were used beyond the capacity of balls to withstand. In each case the bearing is reported to have given excellent satisfaction. The company furnishes this type of bearing at a reasonable price. When desired these bearings can be furnished without holes in the center, to be used as an end thrust where the shaft rests directly on the bearing. In ordering bearings of this kind it is desirable to give revolutions per minute of the shaft.

MATHER LAUNCHES AND BOATS.—A catalogue recently issued by C. B. Mather & Company, Rowley, Mass., in reference to the launches and boats which they build says: "We do not build the cheaper grades and as we use only the best of material we can and do guarantee everything we build, in material, workmanship, finish and durability. As the greater part of our work is done to order, we will make such minor alterations as may be desired at no extra cost. Our modes of construction are the ordinary lap and smooth lap joint, the caulked joint and the smooth batten joint. Although these modes of construction are known all over the country, we wish to call attention to the fact that there is a great deal of difference in the way they are done; that the durability and tightness of the craft relies wholly on their being done properly. We cut every board to fit perfectly, thereby making it unnecessary to steam, warp or spring them into place. All fastenings are copper or brass, unless otherwise stated. As a guide when ordering, we give the kinds of woods we use and their uses. Cedar and cypress are used for planking, as they are the lightest and most durable, and they shrink less than any other known woods. Pine is used for planking, bulkheads, floors, seats, etc. Oak is used for keels, ribs, stems, knees, gunwales, etc. Birch, cherry, ash and oak are used for decks, seats, braces and trimmings. Maple is used for paddles, rudders, grating, etc. Elm is used for ribs only. Spruce is used for spars, masts, oars and paddles. Whitewood is used for bottom boards.



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112 PAGES—ILLUSTRATED
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THE LOZIER ENGINE THE LOZIER ENGINE

Gasoline is good fuel for good or bad engines. The only difference is that good engines run while bad ones won't. If your engine don't run don't blame the gasoline. What you want is a **LOZIER ENGINE.** It's a gilt edge power for any sized yachts. Why it is superior to all other engines is told in our advance catalog. It's full of meat. Write for it.

LOZIER MOTOR CO., Toledo, O.
Factory Office, Chamber Commerce Building.

THE LOZIER ENGINE THE LOZIER ENGINE

PNEUMATIC RIVETERS
FOR SHIP BUILDING and BOILER WORK.

Guaranteed to Drive ⅞ Rivets in 10 seconds with an air consumption of 8 cubic feet of free air.

THE Q AND C

WORK EQUAL TO HYDRAULIC.
OUR DECK RIVETER IS VERY CONVENIENT.
THE Q & C COMPANY, CHICAGO. NEW YORK.

GRAPHITE
FOR
VALVES
AND
CYLINDERS

Is the title of a little pamphlet that should be interesting to every engineer and to every one interested in better lubrication.

IT IS SENT FREE OF CHARGE.

Joseph Dixon Crucible Co.,

JERSEY CITY, N. J.

Cork Tiling.—The chief points which recommend cork tiling for use on naval or other vessels, for interior use, are that it is lighter in weight than any other tiling and, in fact, than any other flooring of an equal thickness. It has great wearing qualities, being more durable than carpets, linoleums, rubber matting, and similar floor coverings which are used. It is easily kept clean; is not affected by water, and being the best known insulation is a protection from either heat or cold. It makes a warm floor comfortable for the feet, and for this reason is especially recommended for use in staterooms or other living rooms aboard ship. When properly laid and finished it makes a handsome flooring. For exterior use the same recommendations apply, and in addition it is not slippery and assures a solid foothold, at the same time giving a smooth and level surface. The tiling can be applied to either wood, steel or iron decks. It is offered to the public by The Cork Floor and Tile Co., 17 Milk street, Boston, Mass.

Ross Feed Water Filters.—The feed water filters or oil separators manufactured by the Ross Valve Co., Troy, N. Y., have found a good field in this country, and are being much used on many of the larger steam vessels. They have already made their reputation on many of the transatlantic and other large steamships. The function is to remove oil from feed water wherever a condenser is used. The filter is connected into and forms a part of the feed pipe and is usually located between the feed pump and the boiler. Where fresh water is not readily available, as in marine plants, a filter of this kind is very essential to the steam equipment. The catalogue issued by this company describes the filter quite completely.

An Endorsement From Lloyds.—The Bethlehem Steel Company, 100 Broadway, New York, advises us that it is in receipt of the following letter from the secretary in the London office of Lloyds Register of British and Foreign Shipping: "I have the pleasure to acquaint you that the General Committee at their last meeting to-day have been pleased to decide to include your name on the list of manufacturers who have satisfied the Committee as to their ability to produce steel which will comply with the requirements of the rules of this Society. This decision is subject to all tests with respect to material manufactured by you, for use in the construction of vessels or machinery intended for classification in this Society's Register Book being carried out in accordance with the requirements set forth in the rules and in the presence of a Surveyor to the Society; and also to the records kept at your works of the charges being at all times in such a condition as to admit of each bar or plate being traced to its charge."

A Complete Graphite Business.—According to *Graphite*, the business of the Dixon Crucible Co., Jersey City, N. J., is unique and is the only organization of the kind in the world of this industry. Everything is made of which graphite is an ingredient. Some concerns make pencils, but no crucibles, others make crucibles, but no pencils. Others make graphite paint, but no lubricants, others make lubricants, but no stove polish, and thus through all the ramifications of the graphite industry others make one item solely, while the Dixon concern makes everything under one roof and one management. Pencils, crucibles, lubricants, foundry facings, greases, paints, electric specialties, with all their details, as found in its catalogues. The company digs the ore, cuts the forest down, assembles the raw stock, and completes a hundred and one useful products. The company has an extensive organization stretching far and wide: First, there are the main offices in Jersey City, next the American flake graphite mines at Ticonderoga, N. Y., then control of the product of the Bavarian graphite mines in Austria, then a cedar wood plant in Florida, each place equipped with a large steam plant and elaborate factory equipment. The selling organization is an army of travelers going all over the United States, South America, Europe and Asia, with salesrooms in New York, Philadelphia and San Francisco.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON.

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

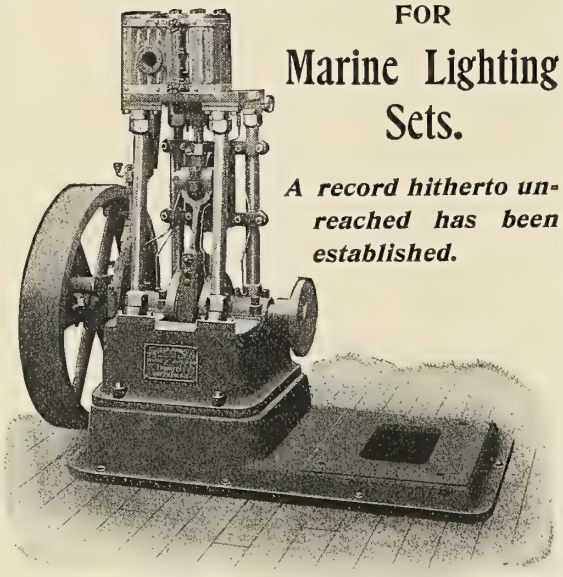
SEND FOR CATALOGUE. Prices and Terms on Application.

Buffalo Engines

FOR

Marine Lighting Sets.

A record hitherto unreached has been established.



Marine Type Upright. Extended Base for Connection to Generator.

New Engine Brochure on Application.

Buffalo Forge Co., Buffalo, N.Y.

NEW YORK OFFICE: 39 Cortlandt Street.

It is the Labor,

Not the material, that makes painting expensive. Therefore, durability is the most important quality of any paint.

Combination Paints

Based on ***Zinc White*** are more durable than any other paints. Therefore they are the most durable.

SENT FREE:
"Paints in Architecture,"
"The Paint Question,"
"House Paints: A Common-sense Talk About Them."

The New Jersey Zinc Co.

71 Broadway

NEW YORK

SPECIAL PAINTS.—Charles H. Besly & Co., 10 and 12 North Canal street, Chicago, Ill., report that they are the Western representatives and carry a complete stock of the celebrated Pecora machinery paints, which have been on the market and given excellent satisfaction since 1862. Flat steel color is in paste form for engines, tools and general machinery. Egg shell gloss enamel finishing paint for engine tools and general machinery. This paint is claimed to be dust proof in ten minutes and dries hard in thirty minutes. Dresden machine enamel imparts rich glossy appearance to gas engines. Pecora blow hole cement is something new. It will stand under the planer, lathe, file, and other finishing operations. It is sold dry and is worked with a knife. It stands 200 deg. heat. C. H. Besly & Co.'s new May catalogue is now ready for distribution and is mailed free to any address on application.

STEAM SPECIALTIES.—The Star Brass Mfg. Co., 108-114 East Dedham street, Boston, Mass., is supplying all of the safety valves, steam cocks, revolution counters, etc., for the two big steamships which the American Line has under construction at Clydebank, Scotland. The Star Brass Mfg. Co. has also furnished valves, stem cocks, etc., for a number of torpedo boats recently under construction for the U. S. Government. The Japanese cruiser *Chitose*, built at the Union Iron Works, San Francisco, Cal., was supplied by this company. A very complete catalogue comprising 168 pages has recently been issued. It shows a very full line of steam specialties of all kinds which this company manufactures. Each specialty is completely described as well as illustrated. In many cases where it is advisable sectional views are given, adding much to the value of the catalogue. There is a very complete line of valves, cocks, indicators, lubricators, and, in short, almost everything and anything that would be looked for in the steam engine department of a vessel. A very complete index adds much to the value of the catalogue.

"HAWKINS' SET," six volumes, price $11.00, on practical steam and electrical engineering will be supplied to the subscribers of MARINE ENGINEERING, on easy monthly terms of payment. Send for description of books and terms. **THEO. AUDEL & CO.,** Publishers, 63 Fifth Ave., New York City.

MANY REPEAT ORDERS.—The Burt Mfg. Co., Akron, Ohio, manufacturer of the Cross oil filter, recently entered the twelfth order from the National Steel Co., the twelfth from the American Tin Plate Co., the ninth from the American Steel & Wire Co., the seventh from the Federal Steel Co., the fourth from the Calumet and Hecla Mining Co., and duplicate orders from the Cambria Steel Co., Diamond Match Co. and the National Cash Register Co.

ROTATING GAUGE COCKS.—The Pittsburgh Gage & Supply Co., 309 Water street, Pittsburgh, Pa., has found much demand for its rotating gauge cocks. These have been on the market for ten years and many thousands of them have been used on the lakes and rivers, as well as on the sea coast. These cocks are self grinding and have a metal stem and seat, require no packing, and it is claimed are absolutely safe from leakage. The cocks are so constructed that when open, steam or water passing through the spiral causes the stem to revolve rapidly, thus cleaning the interior of the cocks, preventing the formation of sediment, and when allowed to come back to its valve seat grinds it clean and true. The spiral is placed near to the valve seat and is protected from the accumulation of sediment or corrosion, and the construction is such that it is impossible for steam or water to pass the spiral without causing the stem to rotate. A lever holds the valve to its seat without interfering with the opening of the cock, or the rotating of steam when the cock is in use.

CARBORUNDUM.—Owing to the large expansion in its business the Carborundum Company, which has its factories and headquarters at Niagara Falls, N. Y., has opened an agency in New York city at 136 Liberty street, with Mr. Emil Ulrich as agent.

QUICK CLOSING WATER GAUGE.—Many of our readers will be interested in the advertisement elsewhere of Paul B. Huyette, which shows the "P. B. H." Quick Closing Water Gauge—something which should be most acceptable to those who have encountered the difficulties incident to shutting off a water gauge glass which has "let go." A pull of the chain from the boiler room floor closes both bottom and top valve of this gauge at once. The gauge is made of the best steam metal, extra heavy throughout, and is protected by heavy guard rods. The manufacturer, Paul B. Huyette, 1225 Betz Building, Philadelphia, Pa., reports a most excellent demand for these gauges.

"UNION CLOTHING FOR UNION MEN."—This is the business motto of the Hamilton Carhartt Co., manufacturers of the workingmen's over clothes, Detroit, Mich. That this policy has met with success is evidenced by the fact that the company has built up a magnificent trade in every State in the Union and does business in a model establishment, under rules which are used by the union journals to illustrate what may be accomplished by maintaining harmonious relations between capital and labor. The Hamilton Carhartt Co. offers to send a self-measuring tape and illustrated time book free to readers of MARINE ENGINEERING, and to send goods by express where they cannot be obtained from the local dealers.

MARINE PAINTS.—Users of paint of any kind will be interested in a series of sample cards which are sent to all inquirers by Benjamin Moore & Co., 262 Water street, Brooklyn, N. Y. One card gives samples of seven different shades, which are intended especially for ship decks. This paint, the circular states, dries perfectly hard with a gloss in eight hours. Complete instructions regarding the way in which paint is properly applied are printed on the back of this circular. Another card gives eight samples of enamel paints, which this company manufactures. Information regarding these paints, wood stains and other manufactures of the company can be had upon application.

STEEL WOOL.—Steel wool, introduced five or six years ago, is a machine produced material that is used as a substitute for sand paper. It is composed of sharp edged threads of steel, which curl up together like wool. Made in various degrees of coarseness, steel wool is put to a variety of uses, the finer wools for polishing woods and metals and the coarser for rubbing down paint and varnish. It is often used on special parts of work, while, for example, on flat surfaces, a man would use sand paper with a block back of it, for the moulding he would use steel wool, which fits into the crevices and conforms itself to irregular shapes. Such work can be done with steel wool far more readily and quicker than with sand paper; and it is used with like advantage on irregular and small surfaces and on carved work. Besides the steel wool there is a coarser material of the same kind called steel shavings, which is put to various uses, as in taking off old paint and varnish and in polishing wood before painting. Sand paper clogs in use. The wool is commonly used with gloves, to keep the ends from sticking into the fingers. One of the leading manufacturers is the Buehne Steel Wool Co., 15 Dey street, New York.

BUILD YOUR OWN MOTOR.

Complete Working Drawings of 1 h. p. Jacketless Gasoline Motor in our **EXPLOSIVE MOTOR NUMBER.** 72 pages. Contains many other interesting articles on Gasoline Motors. Price 10 cents—stamps or coin. **STEAM BOILER NUMBER** treats fully of Steam Automobiles. Price 10 cents—stamps or coin. Subscription $2.00 a year; 6 months, $1.00. Foreign, $3.00. Subscribe for a year, from January 1st, and you will get both numbers.

☞ Mention this paper.

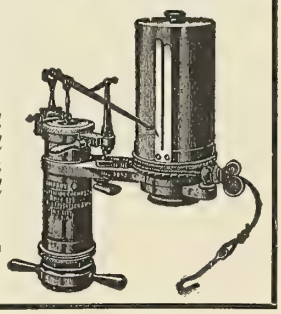
THE HORSELESS AGE, weekly (Establ'd 1895), 150 Nassau Street, New York.

UNCLE SAM *Knows a GOOD THING. That is why we have had a number of orders from different departments of the service for our*

IMPROVED ROBERTSON-THOMPSON INDICATOR.

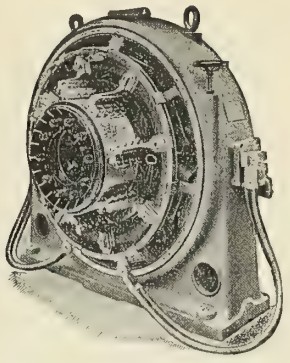
Have You an Indicator?

20,000 Engines are packed with EUREKA. Every naval vessel carries it. Isn't that a good reason why you should try it? There are imitations.



Jas. L. Robertson & Sons,
218 Fulton St., NEW YORK.
Branches: BOSTON, PHILADELPHIA

Westinghouse Generators



"Engine-Type" Generator

For

MARITIME PURPOSES

Compact
Efficient
Economic

Westinghouse Electric & Mfg. Co.
PITTSBURG, PA.

The British
Westinghouse Electric & Mfg. Co., Ltd.
LONDON, ENGLAND

122 F.

DOWN DRAFT FORGES.—The Buffalo Forge Company, Buffalo, N. Y., has had its down draft forge department swamped with orders and has been taxed to keep pace with them. A special catalogue is published, describing and very excellently illustrating the many types of forges which are made. They vary from small and light weight ones, such as would be used on board a small vessel, to the largest and heaviest one built. These down draft forges and furnaces are an important departure in smoke removing. The smoke and gases are immediately drawn away.

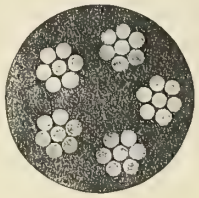
BIG WINDLASSES.—The Hyde Windlass Co., Bath, Me., is rushed with orders and is now as much crowded for room as before moving into its present new quarters. The machine shop will have to be enlarged with the addition of the new foundry. Work is to be shipped to England for one of the steamships building there for the American line. These windlasses weigh, crated, 40 tons. They are built to hoist a 3 1-4 in. chain and the main shaft is 12 ft. long, 10 1-2 in. in dia., and weighs 2 tons. The Windlass Company is also building the windlasses for three of the monitors of the Connecticut class building in different parts of the country.

"LITTLE GIANT" PNEUMATIC TOOLS.—The Standard Pneumatic Tool Company, Marquette Building, Chicago, Ill., reports a surprisingly large demand for its "Little Giant" pneumatic tools. It has recently supplied many shipyards and boiler shops not only in this country, but abroad. The foreign demand was so great that a special company was recently organized in Great Britain to manufacture and handle tools for foreign trade. Tools are sent whenever desired on trial, with the distinct understanding that they can be returned at the manufacturer's expense if they do not give perfect satisfaction. The company keeps them in repair for one year. An excellent circular has recently been issued by this company, illustrating a number of these tools, copies of which will be sent upon inquiry.

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire. The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

STANDARD PNEUMATIC TOOLS.—Owing to the great increase in its business the Standard Pneumatic Tool Company, Marquette Building, Chicago, Ill., has been obliged to increase its facilities in the East, and Mr. George A. Barden, formerly superintendent of the works of this company, has been made Eastern agent, with headquarters at 141 Broadway, New York.

LUBRICATING OILS.—A neat booklet pocket size regarding the matter of lubricating oils and greases has met with much demand, we are informed by W. J. Schaefer & Co., 33 Barclay street, New York. This company has made a special point of providing oils for marine uses of all kinds. Users of oils will find it worth while to get a copy of this catalogue.

CRUMLISH FORGES.—The Crumlish Forge Co., Buffalo, N. Y., has met with much success among shipbuilders, and now has forges in the leading shipyards of the country. Many testimonials have been received, which are very complimentary, one from Arthur Sewall & Co., Bath, Me., who have recently taken up the building of steel hulls, stating: "We have found your forges very satisfactory; in fact, consider them the best in the market for shipyard use."

DRIVING CHUCK DRILLS.—To assist in meeting the great demand for positive driving drill chucks, the Pratt Chuck Co., Frankfort, N. Y., has found it necessary to install a new 150 H.P. Corliss engine. The success in the sales department has been almost phenomenal, having, in addition to the large number of orders ahead, daily additions. The company attributes the secret of its success to the fact the chuck permits the drill to be worn out without slipping or defacing the drill numbers, thus saving much time to the machinist.

NORTON BALL BEARING JACKS.—The Ordinance Department of the U. S. Army recently made a test at the Watertown Arsenal, Mass., of the ball bearing jacks manufactured by A. O. Norton, 167 Oliver street, Boston, Mass. The report says: "It was a 26-in. jack, 50,400 lbs. were raised by operating the lever. The jack was then removed from the testing machine, examined and found in good working condition. Returned to the testing machine and loaded, increasing the pressure with the machine to 240,000 lbs. total. Nut disabled. Ball bearing in good working condition."

FALLS HOLLOW STAYBOLTS.—The Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio, reports an excellent demand for forged staybolt iron for marine uses not only by the Government, but by many ship and marine boiler builders. These staybolts are guaranteed to meet the strictest requirements. The hole is central and of any size desired, and it extends clear through the entire length of the bolt, making the strength uniform. The end next to the fire box may be left open or closed as desired. As the staybolts are rolled hollow from solid material, they are claimed to be more uniform and flexible than those which are drilled. Samples will be furnished by the manufacturer upon application.

WESTON STANDARD PORTABLE DIRECT-READING

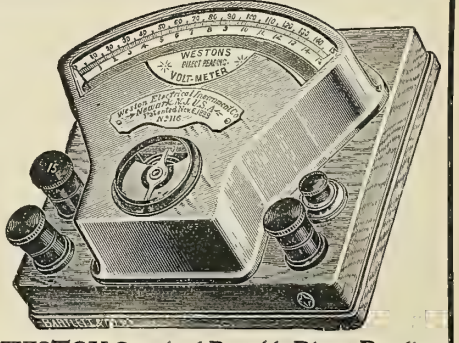
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

NEW OFFICE BUILDING.—It was in 1894 that the Westinghouse Electric & Manufacturing Company removed from the City of Pittsburg to the site of the present works at East Pittsburg, twelve miles from the city. Last year the works again proved unequal to the expanding demand for Westinghouse electrical apparatus. Recent additions to the works already completed and those now in course of erection will bring the floor space to half a million sq. ft., equal to 11 1-2 acres. About a year ago it was determined to erect the permanent offices, which should be of sufficient size to afford accommodation for the staff of the numerous departments of the business. The architectural features and the general arrangement have been under the supervision of Mr. George Westinghouse. The dimensions are 250 ft., with a depth of 50 ft., with seven stories. The entire building is fireproof. The floors and partitions are of terra cotta, the former built with arches, above which are mud sills bedded in concrete. The Mosaic and wood floorings rest upon the beams and sills, and as the intervening space is filled with concrete the sound from one floor to the other is thoroughly deadened. The roof has a very high pitch, and is constructed entirely of steel trusses, to which the slate is fastened with copper nails. At the ends of the building and in the center Gothic gables and dormer windows in the roof, add greatly to the attractiveness of the outline. The partitions between the offices are of terra cotta covered with adamant plaster. The visitors to these offices will find the very latest improvements of the architect and the engineer, in the heating, lighting and ventilating arrangements, and also in the pneumatic dispatch and telephonic systems. The total number of employees at the works is close to 5,500. Mounting on one of the elevators to the mezzanine floor, one enters the works' office. Upon either side of the central passage are offices devoted to the Superintendent, Engineer of Works, the Construction Department and the Production Department. A novel feature has been introduced by devoting one entire end of the building to fireproof vaults. Twenty-four ft. from the outer walls, a fireproof brick wall is carried upwards from the foundation to the roof, forming fireproof vaults upon the several floors, each having an area of 1,200 sq. ft. Entrance to these six vaults is through two sets of double fireproof iron doors on each floor. The vaults are for the safe custody of the valuable plans and blue prints of electrical machinery, the general books and records of the company, and for the large collection of negatives, photographs and electrotypes. Upon the second floor near the elevator is a handsome reception room for visitors, and to the right a door opens upon a suite of rooms devoted to the Managers and their assistants, including rooms for the President, Vice-President, Acting Vice-President, the Manager of the Works, and for his clerical staff. The arrangement of the third floor is similar to that of the second. The suite of offices to the right are occupied by the Westinghouse Company's Publishing Department and the Purchasing Agent and his staff. The arrangement of the fourth floor differs from those below and the entire floor is occupied by the Mechanical Engineering Department and by the draftsmen. The fifth floor is similar to the fourth and the Electrical Engineers are housed there. Upon the sixth floor are two dining rooms, handsomely wainscoted with mahogany, the upper walls being tinted. Adjoining them is the butler's pantry and ample kitchen. One of the rooms of this floor forms the "Central" for the telephonic system, and another serves as a dining room for the women stenographers. Probably the most novel feature of the improvements is the system of pneumatic tubes, whereby all works departments and all the offices are connected through a central exchange station. All the mail and other matters are thus distributed in very much shorter time than could be delivered by messengers.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

LAUNCH WANTED.

Wanted. A launch about 30 feet long, in good condition, with cabin and everything complete. Address LAUNCH care MARINE ENGINEERING.

HULL DRAFTSMAN SEEKS POSITION.

An expert Hull Draftsman desires position: Has had long experience on all classes of Naval and Merchant work. Can calculate and estimate rapidly. Address "H. D." care of MARINE ENGINEERING.

ENGINEER WANTED AS SALESMAN.

Wanted. A thoroughly competent Marine Engineer as salesman for Valves and Steam Specialties. One familiar with Philadelphia shipbuilding trade preferred. Address SALESMAN, care MARINE ENGINEERING.

CAPABLE MANAGER WANTED.

A capable man is wanted by a well known water tube boiler company, who can figure on specifications and who understands the boiler business and has had some experience in business methods. Address BOILER ENGINEER, care of MARINE ENGINEERING.

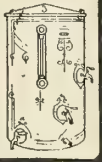
SAVE THE DROPS

"Must Say It Paid For Itself In One Month."

That's what the ***Gendron Wheel Co. of Toledo, Ohio,*** say about the

CROSS OIL FILTER.

It's a good investment if it saves 50% of your oil, and we guarantee that.
Used on the largest steamers.
Send for catalogue No. 42.



Largest Mf'rs of Oil Filters in the world. **The Burt Mfg. Co. Akron, Ohio, U. S. A.**

There is nothing so efficient and economical as

Tilghman's Patent Sand Blast Machinery for Cleaning Hulls,

removing scale from castings and metals of all kinds. Send for particulars.

Edgar T. Ward & Son,
Boston, Mass

NEW OFFICES.—Owing to the demand for larger office facilities for eastern headquarters, the Chicago Pneumatic Tool Company has moved from 122 Liberty street to 95 Liberty street. The offices, as heretofore, will be in charge of Mr. Thomas Aldcorn.

ECONOMY LUBRICATOR FILLER.—The Monash Company, 203 South Canal St., Chicago, Ill., is introducing the Economy lubricator filler. It is believed to be a great oil and time saver. Anybody can connect it to the lubricator. It only requires to be fitted exactly and as it rests easily on the steam joint it prevents any possibility of spilling the oil. Another important thing is that it does away with the difficult task of filling lubricators by hand. A circular describing this device is now being distributed.

REAMERS.—The Philadelphia Pneumatic Tool Company, 21 South 12th street, Philadelphia, Pa., is offering a special line of reamers, which are made for use in connection with the pneumatic tools which this company makes. These reamers are designed especially for the exacting services required in shipyards, boiler shops, etc. They are made of a special grade of steel, each carefully machined and tempered. Each reamer is thoroughly inspected and fully guaranteed and any that are deficient in material or workmanship can be returned. They are made in all sizes.

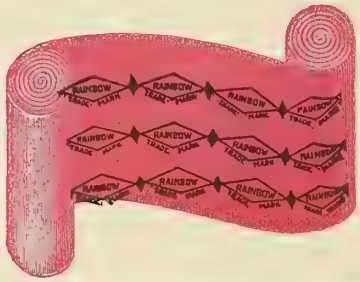
"Peerless"

LARGEST MANUFACTURERS IN THE WORLD OF

FINE FLANGE, PISTON and VALVE ROD PACKINGS.

Rainbow Packing.

Thousands of Imitators. No Equal. Will Hold Highest Pressure.



Don't have to use wire and cloth to hold Rainbow. Can't blow it out.

The Color of Rainbow Packing is Red.

Three Rows of Diamonds extending throughout the entire length of each and every roll of Rainbow Packing.

Peerless Spiral Piston and Valve Rod Packing

It will hold 400 lbs. of steam. Will run twelve months in high speed engines.

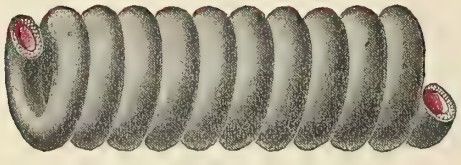
The Eclipse Sectional Rainbow Gasket.

3/8 in.
1/2 in.
5/8 in.
} for Hand Holes.

3/4 in.
7/8 in.
1 in.
} For Extra Large Joints.

Fac-Simile of a 6-inch Section of Eclipse Gasket.
Showing Name and Trade-Mark imbedded.

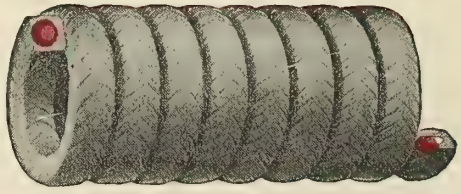
Hercules Combination



METALLIC STOP VALVE PACKING.

Keeps the stem absolutely clean. Always tight. Put up in boxes.

Honest John.



HYDRAULIC RAINBOW CORE PACKING.

For Water and Hydraulics. Made both straight and spiral.

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THE PEERLESS RUBBER MANUFACTURING COMPANY,

16-24 Woodward Avenue, DETROIT, MICH. 202-210 S. Water Street, CHICAGO, ILL.
7-19 Beale Street, and 18-24 Main Street, SAN FRANCISCO, CAL.

16 WARREN STREET, NEW YORK.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION.

Established 1874.

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1609 Brown St., Philadelphia, Pa.

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This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, ROBT. A. NOONE, 498 Swan St , Buffalo, N. Y.
" 2, JOHN B. HEYWARD, 191 Willard St., Cleveland, O.
" 3, JOHN McCLURE, 54 High St., E. Detroit, Mich.
" 4, JAS. A. MACAULEY, 5902 Michigan Ave., Chicago, Ill.
" 5, HARRY P. WALKER, 3111 Dillon St., Baltimore, Md.
" 9, WM. BRIDGES, 784½ 12th St., Milwaukee, Wis.
" 13, SAM'L M. HALL, 2232 S. 5th St., Philadelphia, Pa.
" 15, of New Orleans, La., ALFRED BIRKS, 315 Atlantic Ave., Algiers, La.
" 27, N. P. SLATER, 1010 Garfield Ave., Bay City, Mich.
" 30, JOHN W. FARROW, 427 Pearl St., Pittsburg, Pa.
" 33, W. J. DU BOIS, Tompkinsville, S. I., New York.
" 35, WM. WARIN, 36 East St., San Francisco, Cal.
" 36, JOSEPH THOMAS, 57 Sea St., New Haven, Conn.
" 37, E. D. LOCK, 1304 S. 19th St., Toledo, O.
" 38, W. H. COLLIER, 73 Starr Boyd Building, Seattle, Wash.
" 39, FRANK W. BUCHNER, 124 Chestnut St., Erie, Pa.
" 40, H. N. POWELL, 1626 Ave. N½, Galveston, Tex.
" 41, J. W. COLLYER, Goble, Columbia Co., Ore.
" 43, GEORGE A. MILLER, 828 Wall St., Port Huron, Mich.
" 44, CHRIST DAHL, 534 W. 2d St., Manistee, Mich
" 46, D. W. FARRELL, Clayton, N. Y.
" 47, ARCHIE DE GRAW, 533 Division St., Sault Ste. Marie, Mich.
" 48, JOHN ERVING, 1510 Monroe St., Sandusky.
" 51, DONALD McMILLAN, 105 Fourth St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich.
" 55, ARCHIE STALKER Electric Light & Power Plant, Cheboygan, Mich.
" 57, E. B. MEEKER, 71 Abeel St., Rondout, N. Y.
" 58, GEO. D. ANDERSON, Georgetown, S. C.
" 59, WALTER M MILLER, 221 Saratoga St., E. Boston, Mass.
" 62, NATHAN S. LAWRENCE, 30 Connecticut Ave., New London, Conn.
" 65, WM. McCARREL, 8 Vernon St , Charleston, S. C.
" 67, WM. S. BRADLEY, Saugatuck, Mich.
" 70, FRANK H. GOODELL, 406 Bond St., Astoria, Ore.
" 72, THOMAS NAVAGH, 40 Lake St., Oswego, N. Y.
" 73, E. B. KELLOGG, 711 W. Walnut St., Green Bay, Wis.
" 76, ORSON VANDERHOFF, Grand Haven, Mich.
" 77, JOS. WEBER, 820 Buffalo St., Manitowoc, Wis.
" 78, F. A. REHDER, 29 W Superior St., Duluth, Minn.
" 80, R. P. COOK, 46 Elm St., Albany, N. Y.
" 81, JAS. L. SWEENEY, 204 E. Saragossa St., Pensacola, Fla.
" 82, FRED H. GOWELL, 4227 Middle St., Bath, Me.
" 84, N. K. LUDLOW, 12 St. Joseph St., Mobile, Ala.
" 85, ARTHUR J. IRWIN, 427 Washington Ave., Alpena, Mich.
" 86, SHERMAN A. SMITH, 412 Terrace Ave., Marinette, Wis.
" 87, GEO. B. MILNE, 1003 Trumbull St., Detroit, Mich.
" 88, C. O. CHAPMAN, S. B. Canal, Sturgeon Bay, Wis.
" 89, GEO. A. TATE, 141 North Water St., Ogdensburg, N. Y.
" 91, MARTIN JOYCE, 8 Spruce St., Harbor Sta., Ashtabula, O.
" 92, JOSEPH D. BUDD, P. O. Box 50 Saginaw, E. S., Mich.
" 93, CHAS. W. ROBINSON, McGill Building, Washington, D. C.
" 94, GEO. R. JONES, Box 222, Washington, N. C.
" 101, J. C. BILLUPS, Ave. A, Atlantic City, Norfolk, Va.
" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H. HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

The Keystone Drop Forge Works, Twentieth and Clearfield streets, Philadelphia, Pa., show a very complete line of drop forgings of all kinds in the catalogue for 1900, just issued. This catalogue comprises 20 pages, with many illustrations, and among the specialties manufactured are connecting rods, washers, valves, shafting, keys, bits of every kind, collars, hoist hooks and a very complete line of wrenches, etc.

Sturtevant electric fans, which were described in a recent bulletin, proved such an attractive edition, that the third edition has just been issued as Bulletin H. It comprises 8 pages 8 by 10 in. in size, is very handsomely printed and exceptionally well illustrated. A great many types of fans are shown, and the illustrations are large, so that the detail is made very plain. Enough reading matter accompanies the illustrations to make them easily understood. Those of our readers who did not secure a copy of the previous editions of this bulletin, can now undoubtedly be accommodated.

Vertical duplex boiler feed pumps. together with several other types of pumps, condensers, air compressors and other specialties manufactured by the Dean Bros.' Steam Pump Works, Indianapolis, Ind., have a pocket size catalogue of 16 pages devoted to them. The cuts are nearly all of them full page size, and these, in connection with the sectional views, make the catalogue quite complete. Several tables of sizes and capacities are given, and there is other information which should make the catalogue of much value to our readers.

Those of our readers interested in Alco vapor and similar launches should send for a copy of the catalogue just issued by the Marine Engine Co., Harrison (Newark), N. J. It comprises 40 pages, 6 by 9 in. in size. Launches of many types are illustrated and a number of pictures are shown of the new works which this company has recently established, making it one of the most complete yacht building shops in the country. There is also quite a detailed description of the Alco vapor engine, with its special advantages; in short, there is a great deal of mattter that any user of a launch would be anxious to have. Copies of the catalogue can be had from the company by addressing it and enclosing 10 cents.

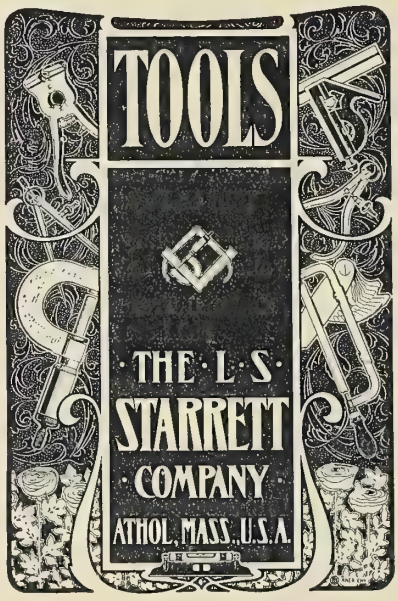
The 1900 catalogue of steam specialties manufactured by the Watson & McDaniel Co., 146 North Seventh street, Philadelphia, Pa., is now ready for distribution. It is more of an illustrated price list than a complete catalogue, but the good quality of the illustrations shows the construction and manner of working of the several specialties and each one is concisely and fully enough described for all ordinary uses. Among the specialties which will be of interest to our readers is the new diaphragm reducing valve; also the Watson pressure regulator, the Jennings steam separator, both horizontal and vertical, and the duplex valve, which is one of the most popular specialties which this company is pushing.

"Benedict-Nickel" seamless tubing is one of the newer specialties of the Benedict & Burnham Mfg. Co., Waterbury, Conn., and in order to fully explain the many features of this tubing, the company has issued a very neat hand-book, which is well illustrated, and gives, within its seventy odd pages, much valuable information regarding this metal and the many other specialties manufactured by this company. As shown in the illustrations this tubing is particularly desirable for marine use, not only for railings, but for condenser tubes, as it is believed to thoroughly resist corrosive action. Unlike the nickel-plated tubing, this is made of white metal clear through. A great deal of valuable information regarding this subject is well brought out in this booklet.

The 12,365 packings and where they are being used, being the output for 1899, is told in a 12 page booklet, with cover, just issued by the U. S. Metallic Packing Co., Thirteenth and Noble streets, Philadelphia, Pa. Three fine engravings show two classes of the packing and the "ideal method of lubricating packings." A perusal of the list of purchasers, and the vessels referred to, shows that many of the leading vessels built during the past year were supplied with these packings, and in a number of instances, vessels already in use adopted them. The booklet is now ready for distribution.

The catalogue just issued by the Standard Tool Co., Cleveland, Ohio, is bound in a double cover and the name of the company is daintily and neatly printed in gold in a little shield. The reading matter is printed in English, French and German. The 24 pages comprising the text are very thoroughly illustrated with fine wood engravings, and the various manufactures of the company are illustrated, including drills, reamers, chucks, sockets, taps, keys, milling cutters and such tools. Every reader who has use for any of these goods will find a copy of this catalogue a very desirable acquisition for purposes of reference.

Many steam specialties manufactured by the Eynon-Evans Mfg. Co., Fifteenth and Clearfield streets, Philadelphia, Pa., are very fully and completely described in a catalogue of 128 pages, just issued. The catalogue opens with the guarantee which goes with all of the goods sold, "Thorough satisfaction to the consumer, or money refunded." Four pages are devoted to a very complete index, then follows the catalogue proper. This includes a reference to the bronze foundry of this company, which has a capacity of making castings from one ounce to 9,000 lbs. The first specialty referred to of particular interest to the marine field is the Korting type of injector, which has recently been modified, so that it is now started, regulated and stopped with one handle. Several other improvements are also referred to. Considerable attention is given to the Eynon-Korting compound injector and a number of illustrations show, not only the outward appearance, but the construction of these injectors. Many pages are given to the subject of condensers, which are shown in many styles by large and excellent illustrations. A number of pages are devoted to steam jet apparatus and blowers of several kinds. A number of illustrations show the application of the exhauster to engines and centrifugal pumps. In a similar manner the application of steam jet pumps as applied to steam vessels is shown. The latter part of the catalogue is devoted to valves of various types and sizes, including globe and gate valves for all uses, regulating valves, brass unions and steam traps. The steam trap has already been given the thorough test of years in marine use. Altogether, the catalogue is a very handsome one, printed in two colors and bound in heavy green paper, with gilt lettering.



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NEW CATALOGUE
No. 16 L
112 PAGES—ILLUSTRATED
FREE

THE LOZIER ENGINE THE LOZIER ENGINE

Gasoline is good fuel for good or bad engines. The only difference is that good engines run while bad ones won't. If your engine don't run don't blame the gasoline. What you want is a **LOZIER ENGINE.** It's a gilt edge power for any sized yachts. Why it is superior to all other engines is told in our advance catalog. It's full of meat. Write for it.

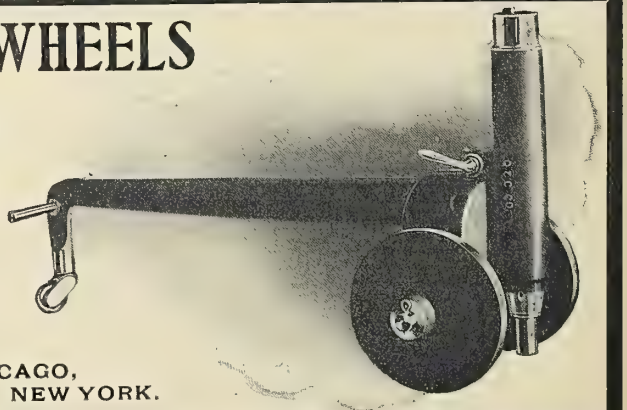
LOZIER MOTOR CO., Toledo, O.
Factory Office, Chamber Commerce Building.

THE LOZIER ENGINE THE LOZIER ENGINE

THEY ARE COMING ON WHEELS

This is our No. 3 Riveter on Wheels

Which is capable of doing the best kind of deck riveting. It is easy to handle, and, as it needs no tackle for support, it saves time, work and expense.



THE Q. & C. COMPANY, CHICAGO, NEW YORK.

Something

YOU SHOULD READ

GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?

NO CHARGE

Joseph Dixon Crucible Co.

JERSEY CITY, N. J.

Users of gasoline engines will be interested in a folder just issued by the Lowell Model Co., Lowell, Mass., describing the gasoline engines with propellers, manufactured by this company. The several types of engines are illustrated and much information is given regarding them.

"Mechanical Ventilation and Heating by a Forced Circulation of Warm Air," is the title of a lecture recently delivered by Walter B. Snow, of the engineering force of the B. F. Sturtevant Co., Jamaica Plain, Mass. This lecture has been very handsomely printed in pamphlet form by the Sturtevant Co. It comprises 31 pages, and is very fully illustrated with a number of illustrations, showing the manner in which large factories, schools and other buildings are ventilated and heated, and full detail of manner of installing the heating apparatus, together with the appliances used, is given. The lecture will prove of much interest to any of our readers who care to investigate this subject.

Large Pump Order.—The order for a pump outfit for stone dry-dock No. 1 in the Brooklyn Navy Yard, was recently awarded to the Prindle Engineering Co., 120 Liberty street, New York, for $40,000.

Counting machines manufactured by the Veeder Mfg. Co., Hartford, Conn., are briefly described in a neatly printed and attractive booklet, 2 1-2 by 3 in. in size. As these revolution counters are very compact and small in size, the neatness of the booklet is accounted for. The cuts show the counters full size. The different types manufactured are shown, including both single and double counters, as well as the rotary and oscillating counters. Every engineer will be interested to have a copy of this tiny book, especially as the counters themselves are sold at a price within the reach of everybody.

Refrigeration is a subject of interest to most engineers, but is one about which comparatively little has been written. Because of this, many of our readers will undoubtedly want a copy of a very complete catalogue, which has been issued by the Frick Co., 39 Cortlandt street, New York. The catalogue is 6x9 in. in size, and comprises nearly 150 pages. It is very fully illustrated with a most excellent quality of engravings, and a great deal of information is given on the subject of refrigeration. The company manufactures machines of smaller sizes, with a capacity of from one ton upwards, specially designed for marine uses.

The Bethlehem Steel Co., 100 Broadway, New York, has just issued a booklet of much interest, comprising over 100 pages, giving much attention to the business of this company. The works are illustrated and concisely described. A number of pictures and text tell of the mines in Cuba, where much of the ore used comes from, and attention is given to furnaces of different types. The pictures illustrate in a progressive way the manner in which armor plate and marine forgings of all kinds and similar specialties are manufactured. We understand that copies of this are ready for distribution to all readers of MARINE ENGINEERING who wish them.

Two bulletins have just been issued by the Bullock Electric Manufacturing Co., Cincinnati, Ohio. One of them, Bulletin No. 36, is devoted to marine lighting and power sets. It comprises 12 pages. On the first page is the picture of a Bullock generator direct connected to a Forbes engine. On three subsequent pages are complete detailed descriptions of the generators and the various parts. On the following page are two very fine illustrations of yachts upon which Bullock plants have been installed. The following pages contain a picture of a Bullock generator connected to a Case Engine, together with tables of sizes, dimension sheets, sectional views, etc. The other bulletin is somewhat larger, and is devoted to railway light and power generators. The illustrations are very excellent and numerous. The plants referred to are of considerable larger size than those in the other bulletin.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

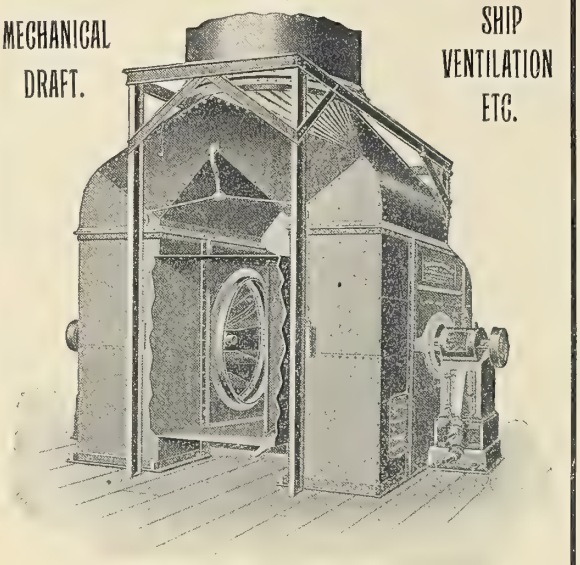
SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

BUFFALO STEEL PLATE FANS
FOR
MECHANICAL DRAFT.
SHIP VENTILATION ETC.



DUPLEX ARRANGEMENT FOR
Mechanical Induced Draft.
Steaming Capacity of Boilers Increased to a Maximum.
Special Types for Steamships.
See Special Catalogue.

BUFFALO FORGE CO., BUFFALO, N. Y.
New York Office: 39 Cortlandt Street.

GOOD PAINT

Is durable, impervious, unchanging in color, firmly adherent. Combination paints based on zinc white have all these qualities.

OTHER PAINTS

Require explanations and apologies. The addition of **Zinc White** obviates the necessity for either.

SENT FREE:
Our Practical Pamphlets,
"Paints in Architecture,"
"The Paint Question."

The New Jersey Zinc Co.
71 Broadway
NEW YORK

BUSINESS NOTES.

MARINE PAINTS.—George W. Piper, 54 South street, New York, carries on a large business devoted exclusively to marine paint of all kinds. He is the sole selling agent for the United States of the well-known McInnes English Composition. He also manufactures and imports a full line of enamel paints of all kinds, and carries these in stock for prompt delivery. Sample cards of paints are sent to all users upon request.

FAULTLESS MATTRESSES.—The H. L. Dougherty Co., 11 North Eleventh street, Philadelphia, Pa., reports that its cotton felt mattresses and cushions have proved very satisfactory in marine work, both for yachts and large merchant vessels. Many special features are claimed for this mattress, because of the absence of animal fiber. One feature that is very important is, that it can be used in case of emergency for life preservers.

"HUB" THRUST COLLAR BEARINGS.—The catalogue recently issued by the Ball Bearing Co., Watson street, Boston, Mass., contains an excellent illustration and description of the "Hub" patent thrust collar bearing. These bearings have been very much used where an excessive thrust is developed by a worm and gear. They have been extensively used in centrifugal pumps and propeller shafts. An accompanying table shows the various sizes and prices.

STEAM SEPARATORS.—The Keystone Steam Separator has met with much success in marine work. It is manufactured by the Keystone Engine & Machine Works, Fifth and Buttonwood streets, Philadelphia, Pa. This separator is made ready to apply, including standard pipe, flanges, water gauge, etc. Steam is admitted from either a horizontal or vertical connection, and takes a downward course through outlets of ample size to admit of passage without back pressure. Considerable more detail is given in a circular which the company issues.

THE PEERLESS RUBBER FACTORY.—For several years there has been a steady growth in the business of the Peerless Rubber Mfg. Co., until now the limit has been reached, overtime work, or two shifts of workmen not being able to keep up with the orders. The company has, therefore, broken ground for a large addition to its plant, and will now be able to turn out promptly larger quantities of its well-known Rainbow packing and other rubber specialties. This company has recently issued a very complete catalogue of all of its goods, copies of which can be had by addressing the Peerless Rubber Mfg. Co., 16 Warren street, New York.

DURABLE WIRE ROPE.—An unexpectedly great increase in its business has made it necessary for the Durable Wire Rope Co. to remove its offices to much more commodious quarters at 288 Congress street, Boston, Mass. The peculiar features of this rope have made themselves felt, not only among yachtsmen, but shipbuilders, and have led to the great expansion in business. This rope is claimed to be the strongest, most flexible, most durable and rust proof. The important feature of this rope is that it has the wearing qualities of manila rope, and the strength of wire rope.

GRINDING MACHINES.—The Landis Tool Co., Waynesboro, Pa., makes a specialty of grinding machines for cylindrical, conical and plane surfaces. A catalogue recently issued by this company explains the advantage of grinding machines in working out rough finished shafts and the manner of grinding them, so that when carefully gauged, they shall be accurate in every particular. By the use of these machines one is enabled to use hardened spindles, crank and crosshead pins and other such important parts of engines and steam appliances, where otherwise it might be necessary to use a softer steel. Any of our readers who are at all interested in the subject of grinding machines, will find the catalogue of this company a very valuable one for reference.

HOLLOW STAYBOLTS.—We are informed by the Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio, that owing to the great amount of time saved by using its hollow staybolts, many boiler manufacturers are discontinuing the drilling of staybolt iron themselves and making use of the staybolt iron manufactured by this company, owing to the great economy.

"CUTS LIKE A DIAMOND."—Patterson, Gottfried & Hunter, 150 Centre street, New York, are making a specialty of the Sterling hack saw blades. The claim is made for this blade that it "cuts like a diamond." They are made in standard sizes, and when desired saw frames are sold with them. The company issues a little folder, giving considerable information regarding these blades.

THE PURITAN ACCIDENT.—A month ago the Fall River liner *Puritan* met with a serious accident while on one of her trips, caused by the breaking of the wrought iron shaft. Order was at once given to the Bethlehem Steel Co., 100 Broadway, New York, to replace this shaft with one of its well-known hollow forged steel ones. In several instances of this kind the Bethlehem Co. has been much gratified to have orders promptly placed for one of its hollow forged shafts to replace iron ones which have given out. Among other orders recently received by the Bethlehem Co. is an important one from Australia, for crank shaft forgings.

RUST PREVENTIVE.—Charles H. Besly & Co., 10 North Canal street, Chicago, Ill., report an unusually large demand for Mannocitin, which is claimed to be an absolute rust preventive for engines, machinery, tools, and any other metal. Mannocitin is composed of greases and volatile oils. It is, and remains, absolutely neutral, and contains no acid. On application, the oils evaporate, leaving an airtight film or skin, which adheres tightly to the metal, and absolutely and permanently prevents rust and corrosion. Mannocitin withstands salt air, salt water, rain, snow, dampness, perspiration, steam, gases and fumes of acids and ammonia. A booklet is sent to all inquirers, giving much more detail concerning this compound.

PNEUMATIC SPECIALTIES.—F. G. Street, Temple Court Building, Chicago, Ill., is making a specialty of pneumatic goods. Among these are the Climax armor house coupling, a particularly desirable device when hose is used for compressed air. It is easily made use of, and can be applied to any hose. It is especially recommended for use with the flexible metallc hose armor sold by Mr. Street. By use of this armor, hose is made capable of withstanding enormous pressures, and it greatly increases the life of rubber hose. When hose is so protected, it will not kink, nor is it liable to burst. The Climax marine reducing valve is designed to be equally as useful in controlling steam as in controlling air. The special claim for this valve is that it has no diaphragm to break, no stuffing box to be packed, and the dash pot is above the flow of steam.

OLYMPIA ASBESTO-METALLIC GOODS.—The C. W. Trainer Mfg. Co., 89 and 91 Pearl street, Boston, Mass., is offering a line of specialties manufactured from its well-known asbesto-metallic material. Among them are the following: Woven tape, by which joints can be quickly made and which will resist the highest pressure. This is made to all thicknesses and widths, and to suit all conditions. Woven gaskets, which are made in given sizes and shapes, from the asbesto-metallic sheeting. Piston packing, which is suitable for either high or low pressure, and it is made in different shapes and forms to suit all conditions. In order to understand the special features of these goods, it should be borne in mind that a fine brass wire is spun into the warp and weft of the material, giving greater tensile strength and to enable thin material to be used. Elasticity is imparted by a coating of India rubber solution, which renders the fabric waterproof. It is claimed for the Olympia Asbesto-metallic products that they will stand the highest pressure.

THERE IS BUT ONE EUREKA Packing

And that bears this trade-mark.

PATD EUREKA TRADE MARK

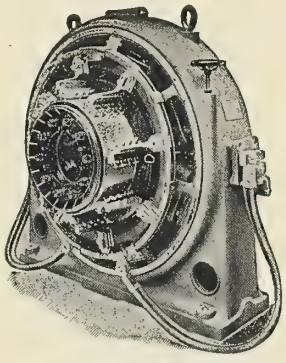
which is a Guarantee of Perfection.

There are IMITATIONS, but only one DIAMOND, and that's "Eureka." It's the cheapest good packing made; a friend to the ENGINEER, a profit to the user.

We make
INDICATORS, PLANIMETERS, REDUCING WHEELS, THREEWAY COCKS, &c
JAS. L. ROBERTSON & SONS, 218 Fulton St, N. Y.
Branches: BOSTON—PHILADELPHIA.

Westinghouse

Electrical Apparatus



"Engine-Type" Generator

For LIGHTING and POWER

Westinghouse Electric & Manufacturing Co.

PITTSBURG, PA.

All principal cities in United States and Canada

122F

FOSTER STEAM SPECIALTIES.—Owing to the great increase in its business, the Foster Engineering Co., Newark, N. J., will erect at once a three-story building. This company started business in a small room in New York about ten years ago, and later moved to its present quarters in Newark. This company has made a specialty of regulators for steam pressure, and has done work not only for the United States Navy, but for the Danish, Japanese, Brazilian and other foreign navies, in addition to merchant marine work.

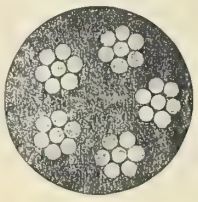
LUBRICATOR FILLER.—A new invention is the "Economy" lubricator filler, a device patented by the Monash Co., 203 South Canal street, Chicago, Ill. There is no machinery about it, and any engineer can connect it to the lubricator. It rests on the engine, which keeps the oil warm, and it is filled once a week. It does away with the very disagreeable task of filling the lubricator by hand, and reduces the oil bill, as it absolutely stops waste of the most expensive oil used. It is claimed by this method that a pint lubricator can be filled in ten seconds with no labor required. It insures perfect lubrication to the engine, to say nothing of cleanliness. Its operation is very simple.

NEW CLEANSER AND DISINFECTANT.—"Sultar" is the name of a new antiseptic cleanser and disinfectant, which is being put on the market by the Sultar Co., 356 West Fifty-eighth street, New York. It is sold in liquid form for cleansing purposes, for decks, as well as walls on board vessels. It is believed to be positively free from germ life, at the same time purifying the air in a room in which it is used. It is always ready for use, and has been adopted on many lines, such as the American Line, Red Star Line, Anchor Line and Mallory Line. It has such great strength that only a small quantity is used in proportion to the water. A special advantage is the way in which it cuts grease and oil. Sample bottles are sent to all inquirers.

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire. The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

THE MCMULLIN MOTIVE POWER CO.—Owing to the enlargement of its scope, the former firm of F. R. McMullin Mfg. Co., has been incorporated as the McMullin Motive Power & Construction Co. The company will devote itself exclusively to the manufacture of gas and gasoline engines and motor vehicles. The executive offices will hereafter be in the Royal Insurance Building, Chicago, Ill.

SHIP BOLTS AND RIVETS.—The Hoopes & Townsend Co., 1330 Buttonwood street, Philadelphia, Pa., manufactures a full line of ship, boiler and cooper's rivets, cold punched nuts, turnbuckles and a number of other similar specialties, which are extensively used in marine work. This company appreciates the tendency of the times toward shipbuilding, and is now making a specialty of goods of this kind.

JONES UNDER FEED STOKER.—One of the newest stokers on the market is the Jones under feed stoker, manufactured by the Under Feed Stoker Co. of America, with head offices at 218 La Salle street, Chicago, Ill. These stokers are designed not only to do away with the smoke nuisance, but to reduce the matter of stoking to a mechanical operation. Their value for marine use can readily be learned by sending for copies of the catalogue and other circulars issued by the company.

DUNDON WATER TUBE BOILER.—Among the water tube boilers recently put on the market, is one designed and manufactured by P. F. Dundon, 223 Folsom street, San Francisco, Cal. Circulars illustrating and describing this boiler are now ready for distribution. They give end views and sectional views of the side elevation, showing the arrangement of the tubes, also a complete boiler. End holes offer easy access to the tubes for the purpose of cleaning, and this is readily accomplished, as the tubes are straight. Any of our readers interested in the subject can secure copies of these circulars.

THE HARLAN & HOLLINGSWORTH YARD.—The Harlan & Hollingsworth Co., Wilmington, Del., successfully launched last month from one set of ways three tugs for the Pennsylvania Railroad Co., the *Wilmington, Johnstown* and *Harrisburg*, in the space of 17 minutes from the time the first wedge was driven till the last boat struck the water. The dimensions of these boats are 100 ft. length over all; beam molded, 22 ft.; depth, 12 ft. 2 in. House on deck partitioned off to form galley, boiler room, crew's water closet, engine room and cabin; also an upper deck, with pilot house, skylight, companionways, etc. Engine, compound, 20 in. by 40 in., 26 in. stroke, supplied with steam by two Almy water-tube boilers. The other work in this yard is progressing rapidly. The steamer *Whitney*, for the Metropolitan S. S. Co., will be launched shortly. The *Manna-hata*, launched in April for the New York & Baltimore Transportation Line, has been delivered, and the barges for the Rockland & Rockport Lime Co. are being rapidly erected. The new 400 ft. ship, the first of three for the Mallory Line, will be laid down on the ways just vacated by the tugs.

WESTON STANDARD PORTABLE DIRECT-READING

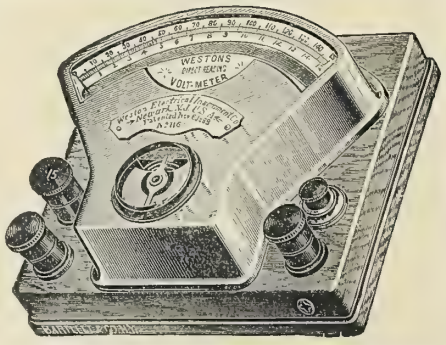
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

BONAR STEAM SPECIALTIES.—Owing to the great increase in trade with their steam specialties, James Bonar & Co., Carnegie Building, Pittsburgh, Pa., have secured the services of Mr. Thomas R. Davis, who has been well known for many years in the steam specialty trade. Mr. Davis will devote himself to pushing the sale of Bonar oil filters, Bonar gauge cocks, Pittsburgh, feed water heaters and other goods.

CHAPMAN VALVES.—The Chapman Valve Mfg. Co., Indian Orchard, Mass., reports the following recent orders in various lines: 243 bronze gate valves, of both medium and heavy weight, from 3-4 in. to 17 in. in size for the United States vessels *Missouri*, *Arkansas*, *Indiana*, *Illinois*, *Massachusetts* and *Cincinnati*, 64 8 in. and 18 16 in. special iron body valves, with bronze mountings, for the new floating dry-dock at valves are made of high quality of steam bronze valves, with bronze mountings, for the Newport News S. B. & D. D. Co.'s dry-dock. The valves are all of the double-faced solid wedge plug type. The bronze valves are made of high quality or steam bronze throughout. The great majority are made with flange ends and indicating device, and a number are provided with gearing or special operating device. They are to be used for steam, air, water, etc. Many of the dry dock valves are equipped with floor-stand extension rod and wheel for operating from deck above. In other lines of interest to our readers, are 2 50 in. and 3 40 in. straight valves, and 4 24 in. angle valves, with cast iron bodies, full bronze mountings and special babbitt metal seats and gearing for exhaust and condenser piping. These were furnished to prominent electric light and street railway companies. Also, 48 32 in. and 16 30-in. special air valves for blast furnace work. These are for some of the largest blast furnaces in this country. On the first of the year this company issued a new and very complete catalogue and price list. It has had an unusual demand for this book, particularly from consulting and designing engineers in all lines, so much that a new issue is being contemplated.

SMOOTH-ON.—This substance is a metallic putty, and is especially adapted for closing cracks in boilers, putting on patches and such other work where metal surfaces are to be brought together to form a solid piece. It is a dry, powdered composition, when mixed with water to the consistency of a stiff putty, becomes hard and of much the same consistency as iron, so that it can be finished with a smooth surface. It will withstand heat and vibrations, and is affected by heat and cold the same as iron. It increases in bulk when unconfined about 5 per cent when it hardens, and this action is what makes it perfectly tight when confined between two iron surfaces or in an opening or fracture. By remembering this action the engineer in the use of this compound can utilize it in many ways in repairs in cast and wrought iron work, and on account of its strength to withstand heat and vibrations. In ship engine and boiler building plants, there is a demand for a material that may readily be applied in the form of patches, where fractures occur, and also in the case of boilers and piping for permanent joints, mainstay braces and screw nuts. The discovery and use of Smooth-On compound has met with success, and has made easy many repairs that it would be difficult, if not impossible, to do otherwise. As one example of what this material has accomplished on repair work; a large rotary hydraulic pump, with a capacity of seven million gallons per day, collapsed with a fracture 14 feet in length, extending from the discharge pipe around the housing of the pump wheel, to the intake pipe. New castings could not be procured under four months. This pump was repaired with the Smooth-On compound in a few days, and the pump was used at the same speed and capacity as ever. The manufacture of this material is under the supervision of an analytical chemist, who is an expert in iron analysis. Further particulars can be obtained from the Smooth-On Mfg. Co., 547-549 Communipaw avenue, Jersey City, N. J.

AN INTERESTING LAUNCHING—One of the largest tugs ever constructed in the port of Baltimore is the John K. Cowen, which was launched a month ago in the yard of the Spedden Shipbuilding Co., Baltimore, Md. The launching was a great success in every way and was witnessed by many hundreds of people.

CROSS OIL FILTERS.—The new power plant of the Electric Street Railway Co., in the City of Mexico, is believed to be the finest in that Republic. It is fitted throughout with American machinery, and among the most recent orders placed was one for Cross oil filters, given to the Burt Mfg. Co., Akron, Ohio.

INTERIOR DECORATIONS.—Hale & Amory, architects, Boston, Mass., announce that they have established a department for the designing of joiner work and interior decoration of yachts and steamships, with a branch under the direction of Mr. Henry G. Morse, Jr., with offices at Drexel Building, Philadelphia.

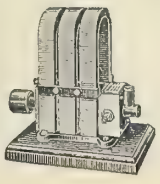
COALING AT SEA.—The test recently made of the Miller apparatus for coaling vessels at sea has attracted much attention. It is manufactured by the Lidgerwood Mfg. Co., 96 Liberty street, New York. Several foreign governments have investigated this system carefully, and it has now been perfected to such an extent that the Lidgerwood Co. is prepared to fill orders.

SILICA-GRAPHITE PAINT.—Among the many specialties of the Joseph Dixon Crucible Co., Jersey City, N. J., is the Silica-graphite paint, which is especially valuable for protecting steel and other metal surfaces. An interesting four-page folder is sent to all inquirers, showing two large office buildings in New York, the steel structures of which were protected with this paint before the outside walls were built up.

MOVED TO SOUTH STREET.—In order to be nearer the center of his trade, C. A. Geissler, who has recently taken the business so long carried on by H. H. Heinrich in dealing in marine chronometers and fine watches, has moved to 26 South street, New York. In the new quarters Mr. Geissler has better facilities for carrying a regular stock and for giving even greater care and attention to chronometers and watches left in his care for repair and adjustment.

A GROWING SHIPBUILDING FIRM.—In 1894, Percy & Small started in Bath, Me., in a small way, in the shipbuilding business. They have evidently prospered from the first, as they have found it necessary to lease within the past month what is known as the Reed yard, in order to build a five-masted schooner just ordered. This is the second time that this firm has found it necessary to enlarge its capacity by leasing other yards. It now has three separate yards in operation, and has a number of schooners under operation, one a six-master.

ELECTRICAL INSTRUCTION.—Railway Motor Engineering is a new course of instruction offered by the International Correspondence Schools, Box 1111, Scranton, Pa. The course was prepared and is being kept up to date by Eugene C. Parham, Superintendent of the Nassau Division of the Brooklyn Rapid Transit. It is intended for operators, and those who wish to become operators of electrical machinery. As instruction is carried on by mail, it affords a means of acquiring valuable information without obliging students to lose time from work. The International Correspondence Schools were established in 1891, and have nearly 100 courses and over 165,000 students and graduates.



OUR PERMANENT MAGNET DYNAMO
is a reliable source of current for producing
"SPARKS"
to ignite the charges in
GAS AND GASOLINE ENGINES.
Special styles for Launches and Automobiles
Send for descriptive pamphlet M. E.
THE HOLTZER-CABOT ELECTRIC CO.
Boston (Brookline), Mass.

ELECTRIC BELLS.—Those of our readers who are at all interested in the subject of electric and electro-mechanical signals, will find a very interesting catalogue on the subject, known as Catalogue No. 37, issued by the Holtzer-Cabot Electric Co., Brookline, Mass. This comprises a full line from the little push button buzzer to gongs of considerable size for fire alarm systems and such uses.

SAVE THE DROPS

We have just received our third order for 90 gallon

CROSS OIL FILTERS

For use in the U. S. Armory at Springfield, Mass. Uncle Sam uses them in all branches of his service.

The same mail brought our 13th order from the American Tin Plate Co., and a reorder from the Lodge & Shipley Co., Cincinnati, for six more, given after making a test.

These are endorsements worth having.

We will send you Filter on approval and guarantee it to save 50 per cent of your oil bills.

Send for Catalogue 42.

The Burt Mfg. Co. *Largest Mf'rs of Oil Filters in the world.*
Akron, Ohio, U. S. A.

PROFESSIONAL CARDS.

HENRY L. EBSEN,

CONSULTING AND CONSTRUCTING ENGINEER.

230 WEST STREET, NEW YORK.

TELEPHONE, 1534 FRANKLIN.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

LAUNCH WANTED.

Wanted. A launch about 30 feet long, in good condition, with cabin and everything complete. Address LAUNCH care MARINE ENGINEERING.

ENGINEER WANTED AS SALESMAN.

Wanted. A thoroughly competent Marine Engineer as salesman for Valves and Steam Specialties. One familiar with Philadelphia shipbuilding trade preferred. Address SALESMAN, care MARINE ENGINEERING.

CAPABLE MANAGER WANTED.

A capable man is wanted by a well known water tube boiler company, who can figure on specifications and who understands the boiler business and has had some experience in business methods. Address BOILER ENGINEER, care of MARINE ENGINEERING.

GARDNER & COX,

NAVAL ARCHITECTS, ENGINEERS AND YACHT BROKERS.

1 BROADWAY, NEW YORK.

WILLIAM GARDNER.

IRVING COX. TELEPHONE CALL, 2007 BROAD.

H. B. ROELKER,

CONSULTING AND CONSTRUCTING ENGINEER.

Manufacturer of **Screw Propellers** for Usual and for Special Work.

The Allen Dense Air Ice Machine for Steam Vessels.

41 MAIDEN LANE, NEW YORK.

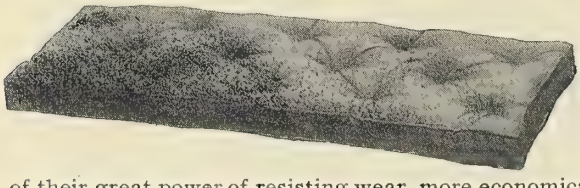
"Faultless" Cotton-Felt Mattresses for Yacht and Steamer Berths

Not simply cotton, but cleaned, carded, interlaced cotton-felt. Resilient to a degree unattained by anything else. Vermin proof. Moisture proof, cannot mildew. Always dry, sweet and clean, which cannot be said of any other mattress exposed to maritime service. Will not mat or get lumpy. Wears forever. Approved by scientific men and endorsed as the ideal bed.

Samples of Faultless Cotton Felt and Tickings sent free.

"Faultless" Cotton-Felt Cushions

for Yachts and Steamer Cabins, Saloons, Deck or Boat use.



Remain dry under all conditions. Luxuriously comfortable, and by reason of their great power of resisting wear, more economical than any others. We are prepared to promptly execute all orders for this work. Full information and samples and prices will be gladly given, and if desired, our representative will call.

H. L. Dougherty & Co., FAULTLESS BEDDING. Factory, 437 to 447 American Street
Warerooms, 11 North Eleventh Street, Philadelphia, Pa.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION.

Established 1874.

NATIONAL OFFICERS.

GEO. UHLER, National President,
1609 Brown St., Philadelphia, Pa.

FRANK A. JONES, National Vice-President,
1616 La Fayette St , Alameda, Cal.

GEO. A. GRUBB, National Secretary,
1318 Wolfram St., Lake View, Chicago, Ill.

ED. R. BLANCHARD, National Treasurer,
583 Fort St. E., Detroit, Mich.

ADVISORY BOARD.

JOSEPH BROOKS, 6323 Dicks Ave.,	Philadelphia, Pa.
JOHN McG. STERRITT, 129 Broad St.,	New York, N. Y.
JAMES H. TAYLOR, 1513 Jefferson St.,	Baltimore, Md.

This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, ROBT. A. NOONE, 498 Swan St , Buffalo, N. Y.
" 2, JOHN B. HEYWARD, 191 Willard St., Cleveland, O.
" 3, JOHN McCLURE, 54 High St., E. Detroit, Mich.
" 4, JAS. A. MACAULEY, 5902 Michigan Ave., Chicago, Ill.
" 5, HARRY P. WALKER, 418S. Patterson Park Ave., Baltimore, Md.
" 9, WM. BRIDGES, 784½ 12th St., Milwaukee, Wis.
" 13, SAM'L M. HALL, 2232 S. 5th St., Philadelphia, Pa.
" 15, of New Orleans, La., ALFRED BIRKS, 315 Atlantic Ave., Algiers, La.
" 27, N. P. SLATER, 1010 Garfield Ave., Bay City, Mich.
" 30, JOHN W. FARROW, 427 Pearl St., Pittsburg, Pa.
" 33, W. J. DU BOIS, Tompkinsville, S. I., New York.
" 35, WM. WARIN, 36 East St., San Francisco, Cal.
" 36, JOSEPH THOMAS, 57 Sea St., New Haven, Conn.
" 37, E. D. LOCK, 1304 S. 19th St., Toledo, O.
" 38, W. H. COLLIER, 73 Starr Boyd Building, Seattle, Wash.
" 39, FRANK W. BUCHNER, 124 Chestnut St., Erie, Pa.
" 40, H. N. POWELL, 1626 Ave. N½, Galveston, Tex.
" 41, J. W. COLLYER, Goble, Columbia Co., Ore.
" 43, GEORGE A. MILLER, 828 Wall St., Port Huron, Mich.
" 44, CHRIST DAHL, 534 W. 2d St., Manistee, Mich
" 46, D. W. FARRELL, Clayton, N. Y.
" 47, ARCHIE DE GRAW, 533 Division St., Sault Ste. Marie, Mich.
" 48, JOHN ERVING, 1510 Monroe St., Sandusky.
" 51, DONALD McMILLAN, 105 Fourth St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich.
" 55, ARCHIE STALKER Electric Light & Power Plant, Cheboygan, Mich.
" 57, E. B. MEEKER, 71 Abeel St., Rondout, N. Y.
" 58, GEO. D. ANDERSON, Georgetown, S. C.
" 59, WALTER M. MILLER, 221 Saratoga St., E. Boston, Mass.
" 62, NATHAN S. LAWRENCE, 30 Connecticut Ave., New London, Conn.
" 65, WM. McCARREL, 8 Vernon St , Charleston, S. C.
" 67, WM. S. BRADLEY, Saugatuck, Mich.
" 70, CHAS. T. SMITH, 211 Bond St., Astoria, Ore.
" 72, THOMAS NAVAGH, 40 Lake St., Oswego, N. Y.
" 73, E. B. KELLOGG, 711 W. Walnut St., Green Bay, Wis.
" 76, ORSON VANDERHOET, Grand Haven, Mich.
" 77, JOS. WEBER, 820 Buffalo St., Manitowoc, Wis.
" 78, F. A. REHDER, 29 W. Superior St., Duluth, Minn.
" 80, R. P. COOK, 46 Elm St., Albany, N. Y.
" 81, JAS. L. SWEENEY, 204 E. Saragossa St., Pensacola, Fla.
" 82, FRED H. GOWELL, 4227 Middle St., Bath, Me.
" 84, N. K. LUDLOW, 15 S. Royal St., Mobile, Ala.
" 85, ARTHUR J. IRWIN, 427 Washington Ave., Alpena, Mich.
" 86, SHERMAN A. SMITH, 412 Terrace Ave., Marinette, Wis.
" 87, GEO. B. MILNE, 1003 Trumbull St., Detroit, Mich.
" 88, C. O. CHAPMAN, S. B. Canal, Sturgeon Bay, Wis.
" 89, GEO. A. TATE, 141 North Water St., Ogdensburg, N. Y.
" 91, MARTIN JOYCE, 8 Spruce St., Harbor Sta., Ashtabula, O.
" 92, JOSEPH D. BUDD, P. O. Box 50 Saginaw, E. S., Mich.
" 93, W. J. COOK, 2324 G. St., N. W., Washington, D. C.
" 94, GEO. R. JONES, Box 222, Washington, N. C.
" 101, J. C. BILLUPS, Ave. A, Atlantic City, Norfolk, Va.
" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H. HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

Patterson, Gottfried & Hunter, Ltd., 146 Center St., New York, send to all inquirers a lithographed card representing an old colored man, who has in his hands a sign showing the different specialties which this company sells, including manila and wire rope, brass and copper goods, and many other specialties which are used in the marine field.

Pneumatic Tools manufactured by the Q. & C. Co., Chicago, are described in one of the most complete catalogues we have seen devoted to this subject. The tools include a full line for all purposes, such as chipping, caulking, beading, riveting, drilling, wood boring, flue rolling, hoisting, etc. The illustrations are very numerous, showing the complete construction of the tools. The text is complete and very concise. Many pages are devoted to rivets of all types, and the illustrations are most excellent. Any one who is interested in the use of pneumatic tools should have a copy of this catalogue.

Special types of boilers manufactured by the Fitzgibbons Boiler Co., Oswego, N. Y., are described and most thoroughly illustrated in a handsome catalogue 9×12 in. in size. The cover is a dark green, heavy paper, printed in gilt, and the text is printed in black and red, on heavy, coated paper. A number of excellent half-tone engravings show the several types, and a number of sizes of this well-known boiler, and a large sectional views in connection with the very complete descriptive matter, makes the catalogue of much value. Copies can undoubtedly be had by writing to the company and mentioning MARINE ENGINEERING.

The Subject of Stoking is one that probably interests every reader of MARINE ENGINEERING, and will undoubtedly result in most of them sending for a copy of the very complete catalogue and book devoted to this subject, issued by the Underfeed Stoker Co. of America, 218 LaSalle St., Chicago. The catalogue is 6×9 in. in size, and comprises 88 pages. It is bound in a handsome cover printed in two colors, and the text is printed in red and black, and is accompanied by many full-page illustrations. These illustrations are very complete views of the stoker under various conditions, and the text gives much information regarding the applications of the stoker to marine and all other types of boilers. A number of tables are given of tests which have been made of these stokers. Many testimonials are also given from users of the stokers, some of which have been in use a number of years. Copies of the catalogue can undoubtedly be had by mentioning MARINE ENGINEERING.

The 1900 Catalogue, issued by the Pedrick & Ayer Co., 85 Liberty street, New York, is now ready for distribution. It is 6×8 in. in size, printed on good paper, and comprises 126 pages of text and illustrations. It is something more than an ordinary catalogue, because of its completeness, and several new tools are shown which have been put on the market since the former catalogue was printed. This is especially true in the very complete line of pneumatic hoists. To other lines of tools, especially riveters, this company has given much attention. The company manufactures practically everything, from small air compressors to the largest tools used in connection with compressed air. The various types of cranes are fully illustrated, as are also the compressors, and detailed information accompanies the many pictures and sectional drawings of the pneumatic riveting machines, to which many pages are devoted. These include both stationary and portable riveters. On page 76 the subject of ship riveting is graphically illustrated. The milling machines, portable crank pin machine, portable cylinder boring machines, also flue-cleaning machines and fuel welding machines, pneumatic tube swaging machines are fully illustrated and described. The very complete index adds much to the value of the catalogue.

A combined pocket and memorandum book is issued by the Charleston Metallic Packing Co., Charleston, S. C., as a compliment to all of those engineers who are users of this company's semi-bronze packing. Those engineers who have not already received a copy can secure one either from the Charleston, S. C., office or the New England branch at 32 Oliver street, Boston, Mass.

Metal sawing machines which the Q. & C. Co., Chicago, manufactures, are fuly described in a catalogue just issued. There are a number of illustrations, with sufficient text to fully describe the several machines. These include cold metal sawing machines of several types, and adapted to all conditions and uses.

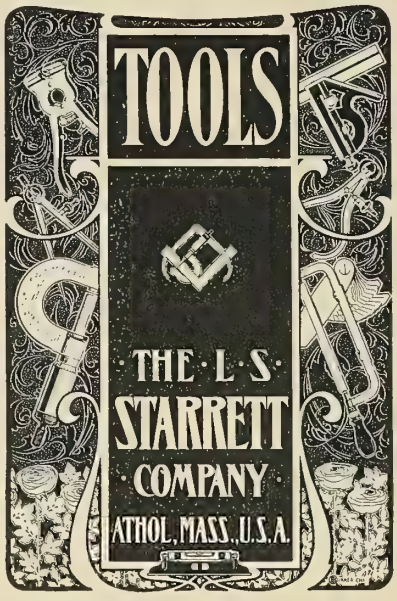
The subject of panel boards is considered in a special catalogue issued by the Bossert Electrical Construction Co., Utica, N. Y. This is a subject which will be of much interest to the majority of our readers, as it covers a line of switchboards especially adapted to steamship electrical plants. A number of illustrations are given, showing switch boards of various sizes, styles and capacities, and considerable attention is also given to steel boxes, covers for panel board boxes, and kindred subjects.

Users of roofing and siding, and other corrugated and sheet metal products, will be interested in the catalogue just issued by the Youngstown Iron & Steel Roofing Co., Youngstown, Ohio. This catalogue comprises 80 pages, and covers very fully the different branches of this company's business, especially such subjects as the use of sheet metal for shipyard, wharf, and other buildings. Kindred subjects also receive attention, such as that of the proper painting of the metal, methods of applying, weights, sizes, etc.

The Pond Machine Tool Co., 136 Liberty St., New York, has issued for use at the Paris Exposition, a very attractive book devoted to the tool trade. It is bound in stiff board, covered with a light green cloth, and with an illuminated cover in gilt and two shades of green. The book is 5×7 in. in size, and comprises nearly 100 pages, in which are described and handsomely illustrated the works of this company and their many specialties, including engine lathes, planing machines, radial drills, boring and turning mills, and specal machines. The text is given in English, French and German.

Many steam appliances, manufactured by James Bonar & Co., Carnegie Building, Pittsburg, Pa., are fully illustrated and described in a new catalogue just issued. It comprises 74 pages, and is made complete by an index and table of contents. The catalogue is bound in a heavy paper cover, neatly printed, and the text is printed on an excellent quality of paper. The several specialties referred to include the feed water heaters and purifiers, to which many pages are devoted, steam separators, Bonar oil filters, which are shown in section and fully illustrated and described, Bonar gauge cocks, and a line of valves, gauges, revolution counters, traps, injectors, reducing valves, lubricators, etc., which this firm sells.

Sight feed lubricators manufactured by the Detroit Lubricator Co., Detroit, Mich., are fully and thoroughly illustrated and described in the 1900 catalogue, which has just been issued. The catalogue is bound in a neat chocolate colored cover, handsomely embossed, and the text comprises 56 pages, which contain a large number of illustrations and a great deal of reading matter. The many lubricators described include brass and glass oilers, brass and glass oil pumps, oiling devices, boiler oil injectors, low water indicators, globe valves and other specialties. The descriptive part of the reading matter is very complete, and in many instances sectional views are given to add to the completeness of the engravings and text. Copies of this catalogue can undoubtedly be had upon application by referring to MARINE ENGINEERING.



SEND FOR
NEW CATALOGUE
No. 16 L
112 PAGES—ILLUSTRATED
FREE

Readers interested in gas engines will find an interesting catalogue on this subject issued by the Noye Manufacturing Co., Buffalo, N. Y., describing the Niagara motor. This is a two-cycle motor, with a number of illustrations showing its application to launches of various sizes. The text describes the features of the engine, such as reversing, method of ignition, etc.

"**The Application of Mechanical Draft** to Stationary Boilers" is the title of a paper recently read by Mr. Walter B. Snow, and which is published in pamphlet form by the B. F. Sturtevant Co., Jamaica Plain, Mass. The pamphlet comprises 22 pages of text, and illustrations showing the manner in which mechanical draft has been applied in several of the leading mills throughout the country. Copies of the pamphlet can be had upon application.

Pressure regulators, reducing valves, pump governors, and other specialties manufactured by the Foster Engineering Co., Newark, N. J., are briefly described in Circular A, now ready for distribution. Illustrations are given of the several specialties referred to, and there are sectional views, together with tables of sizes and prices, which, with the concise reading matter, make the circular one which will be interesting to our readers.

The Hancock Inspirator Company, 85-89 Liberty street, New York city, has issued its 1900 catalogue, and copies are now ready for distribution. It is of the regulation size, and comprises 40 pages, which contain many illustrations and a great deal of information regarding the several products of this company, which include the Hancock inspirator, the Hancock ejector, the Loftus automatic injector, together with the Hancock shaking grates, Hancock valves, jet apparatus, etc. There is much descriptive matter in the catalogue which will be of value to those of our readers who are at all interested in the subject of steam specialties, and as a closing to the catalogue there is a short history giving the story of the Hancock inspirator and its development.

Something

YOU SHOULD READ

GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?

NO CHARGE

Joseph Dixon Crucible Co.

JERSEY CITY, N. J.

Marine electrical apparatus which is manufactured by the General Electric Company, 44 Broad street, New York city, is fully described in a neatly printed pamphlet just issued from the press of this company's printing department. The catalogue comprises over sixty pages and contains a large number of half tone engravings of electrical sets and search lights of all kinds.

A neat booklet, pocket size, printed in two colors and with two illustrations on each page, has been issued by the Bullock Electric Mfg. Co., Cincinnati, Ohio, for distribution at the Paris Exposition. It is bound in a cover of gilt, handsomely illuminated in red, white and blue. The text is in both English and French, and gives considerable information regarding the Bullock Works, with its many departments; also illustrations of special applications of electricity, such as direct connected plants, motor-driven tools, large power plants, etc.

BUSINESS NOTES.

GARLOCK PACKING.—Owing to the great extent to which its sales have extended, the Garlock Packing Co. has found it necessary to establish an office and salesroom at 537 Mission St., San Francisco, Cal., in order to be able to fully cover the Pacific Coast.

GALLEY FITTINGS.—In addition to a full line of signal lamps of all kinds, Russell & Watson, 145 Main St., Buffalo, N. Y., manufacture and carry in stock a full line of galley fittings of all kinds. They manufacture their own ranges and have supplied most of the steamers on the lakes for many years.

CRUMLISH FORGES.—Early in 1898 the Crumlish Forge Co., Buffalo, N. Y., sold a number of portable forges to the Gas Engine & Power Co. and Charles L. Seabury Co., Con., Morris Heights, New York city. Recently the Crumlish Co. wrote to ask if the forges were satisfactory and received in reply a letter stating: "We take pleasure in stating that they have been so satisfactory that you will have received an order for two more before this reaches you. We cannot say anything more convincing."

BLUE PRINT PAPER.—In order to largely increase facilities for handling business, the Mackey Co., Ltd., 25th St. and A. V. Ry., Pittsburg, Pa., has sold its business to the Elliott Electric Blue Print Co. The new company has largely increased the equipment for filling orders by adding new machinery, etc., and will hereafter carry in stock a complete line of Electric blue print paper and supplies. The new company has taken much larger quarters at 723 Liberty Ave., and the business, as heretofore, will be in the hands of Mr. Byron K. Elliott.

FINE MECHANICAL TOOLS.—Any users of fine tools will appreciate the convenient arrangement of the catalogue issued by the L. S. Starrett Co., Athol, Mass. Each tool is illustrated with a most excellent wood cut, and is numbered and in other ways keyed, so that it is easy to order anything desired. The catalogue comprises 112 pages, and covers a very complete line of tools, such as bevels, callpers of all kinds, punches, clamps, nippers, gauges, hack saws, levels, micrometers, rules of all kinds, and screw drivers, squares, etc. A copy of the catalogue will be sent to any inquirer.

THE SHERWOOD INJECTOR.—The injectors manufactured by the Sherwood Manufacturing Co., Buffalo, N. Y., have been on the market for some years, and have an established reputation. Among the special features are the following: The injector is operated by one lever, it works at any pressure, from 15 to 200 lbs., will lift 24 ft. under proper conditions, will handle hot water up to 150 deg., is simple, requires no valves and is constructed for wire and sure feed. All the parts are easily accessible. Pictures of this injector, with description of it, together with sectional view showing its construction and the manner of its operation, can be had upon application to the company.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

Buffalo Engines

FOR

Marine Lighting Sets.

A record hitherto unreached has been established.

Marine Type Upright. Extended Base for Connection to Generator.

New Engine Brochure on Application.

Buffalo Forge Co., Buffalo, N. Y.

NEW YORK OFFICE: 39 Cortlandt Street.

GOOD PAINT

Is durable, impervious, unchanging in color, firmly adherent. Combination paints based on zinc white have all these qualities.

OTHER PAINTS

Require explanations and apologies. The addition of **Zinc White** obviates the necessity for either.

SENT FREE:
Our Practical Pamphlets,
"Paints in Architecture,"
"The Paint Question."

The New Jersey Zinc Co.
71 Broadway
NEW YORK

FAN MOTORS.—Owing to the great popularity of their fan motors, Thomas P. Benton & Son, La Crosse, Wis., have increased their facilities for manufacturing this specialty, and now offer a full line of motors of this type for direct current.

MARINE CEMENT PAINT.—The Queens County Varnish Works, Long Island City, New York, are making a specialty of Bailey's Patent Marine Cement Paint. It is anti-corrosive and is especially designed for use on bottoms of iron and steel vessels and also protects from pitting on the inside of hulls. it has been introduced throughout the United States.

BOATS AND LAUNCHES.—During the past year the firm of C. B. Mather & Co., Rowley, Mass., have very largely increased the capacity of their plant by the erection of new buildings and by the addition of machinery. It is the purpose of the company to be prepared to fill orders of any kinds for boats and yachts. The company builds anything, from small rowboats to large launches and yachts, and has special facilities for building ships' boats. An interesting catalogue describing the workmanship of the firm, and giving several types of boats which have become standard, is published.

SHELBY SEAMLESS TUBE.—The process by which the seamless, cold drawn steel tube manufactured by the Shelby Steel Tube Co., Cleveland, Ohio, is described in a catalogue which has recently been issued, will prove interesting to those who have occasion to use boiler tubing. To all such a copy of the catalogue can be had by applying to the company. Among other things referred to in this catalogue are the specifications which govern the inspection of tubing purchased for the Navy. These specifications show that the tests are very thorough, and it must be evident that the Shelby tubing comes up to these requirements, as the company has furnished an immense amount of tubing, especially for the new torpedo boat destroyers and other vessels which require tubing of the highest quality.

ATLANTIC STEEL TUBING.—Owing to the large increase in its business, the Atlantic Tube Co., whose head offices are at 1209 Park Building, Pittsburgh, Pa., has found it necessary to establish an Eastern office, and this will be in charge of Mr. C. F. Davenport, at 10 Havemeyer Building, New York city. Mr. Davenport has been connected with the boiler trade for many years and is widely known. He will devote his entire attention to the selling of the cold drawn steel tubing manufactured by this company.

BULLOCK "TEASER" PATENTS SUSTAINED.—A decree has been entered in the cases of the Bullock Electric Manufacturing Co., vs. Baltimore Evening News and Bullock Electric Manufacturing Co., vs. Geo. Knapp & Co., publishers of the St. Louis *Republic*, sustaining the validity of the "Teaser" patents. The "Teaser" patents cover a system for operating large newspaper presses and other machinery by electricity. The invention is the result of several years of experimenting involving great expense, and this decision gives to the Bullock Company the exclusive right to the manufacture of this apparatus. The "Teaser" system is now installed upon a great many of the largest daily newspaper presses in this country and England.

PHILADELPHIA PNEUMATIC TOOLS.—The greatly increased demand for pneumatic tools has been felt by the Philadelphia Pneumatic Tool Co., 21 South 12th St., Philadelphia, Pa. This company is selling a very large number of chipping and calking hammers, not only for use in marine work, but to such large companies as the Pennsylvania Steel Co., The Baldwin Locomotive Works, The Brown & Sharp Co., The Ingersoll-Sargeant Drilling Machine Co., the Bigelow Co. and many others. The Philadelphia Pneumatic Tool Co. reports that its tools have stood very severe competitive tests which have been frequently made. During the past few months the company has more than doubled its shop capacity and it has established branches not only throughout the United States, but throughout Europe and in Japan.

CROSS OIL FILTERS.—The new battleship *Kearsarge* completed her equipment before going into service by ordering Cross oil filters from the Burt Mfg. Co., Akron, Ohio. This company has also just filled an order for its filters for the Navy Yard at San Francisco, Cal.

HANDSOME YACHT.—A handsome yacht, 108 ft. long, is just having finishing touches put to her at Weller's Shipyard, Trenton, N. J. Her engines were furnished by the Reeves Machine Co., Trenton, N. J., and her boilers by the Almy Water Tube Boiler Co.

AIRPORTS AND DECK LENSES.—Messrs. J. R. Donnelly Co., 54-60 Classon Ave., Brooklyn, New York, are making a specialty of heavy plate glass for deck lenses and airports, carrying all sizes in stock, in thicknesses from one-half inch to an inch and a half, and can fill orders within a day or two after receipt, made with either nipped or ground edges, as required. This company also furnishes bent glass for pilot houses in either plate or window glass.

VALVE RESEATING MACHINES.—The business formerly carried on at Auburn, N. Y., for manufacturing the Dangerfield valve reseating machines has been purchased by Mr. Ward P. Barnum, who has removed the business to Fredonia, N. Y. Mr. Barnum has practically established a new factory throughout, and installed some of the latest and most improved machinery, and is now prepared to fill orders for reseating machines of any size and of any quantity.

KINGSFORD BOILERS AND PUMPS.—The Kingsford Foundry & Machine Works, Oswego, New York, were unfortunately crippled recently by a fire destroying part of their plant, but not sufficiently as to interfere materially with business. The company is now running its plant with a full force of men, and although very busy is able to fill orders with little or no delay in its boiler departments, as well as in its centrifugal pumping machinery departments. The marine engine department is also very busy. The company has recently shipped a large amount of pumping machinery to Japan and Mexico.

WHITNEY GRAVITY BOILER FEEDER.—The University Mfg. Co., 25 North Second St., Philadelphia, Pa., is putting on the market the Whitney Gravity hot water steam boiler feeder. Many claims are made for this feeder; among them are the following: It is a positive water feeder with or without steam pressure, scale, rust, sand or gravel have no effect; it will lift water to the full limit of atmospheric pressure, requiring no pumps, injectors, inspirators, or other usual mechanical attachments; it does not overflow and will always furnish dry steam, as in no case will the water rise beyond the desired limit in the boiler. It is claimed to be so simple that a child can turn on and off the water and that there is nothing in it mechanically to get out of order. Its operations are claimed to be as sure as the laws of gravity. Another important claim is that it can easily be regulated to feed one drop of water a minute, or can be changed immediately to its full capacity.

AUTOMATIC ENGINES.—Users of automatic engines for such purposes as operating electric light plants will be interested in the special features claimed for the Shepherd engine, which is manufactured by the American Fire Engine Co., Seneca Falls, N. Y. These engines are especially designed for direct connected work, and other uses where fast running is required such as for fans, pumps, blowers, etc. Many features are claimed, such as adjustment for taking up the wear in the wearing parts. The lubrication is so arranged that there is no need of any throwing of oil about. The frame is solid, and the cylinder and steam chest are cast together. The valve is double ported for both steam and exhaust, and is self-adjusting for steam tightness. It is also collapsible, and acts as a relief valve in case of water in the cylinder. The governor is of the well-known Shepherd type, invented by the designer. A detailed description and many illustrations regarding this engine can be had in the catalogue devoted to it. **It is sent to all inquirers.**

THERE IS BUT ONE EUREKA Packing

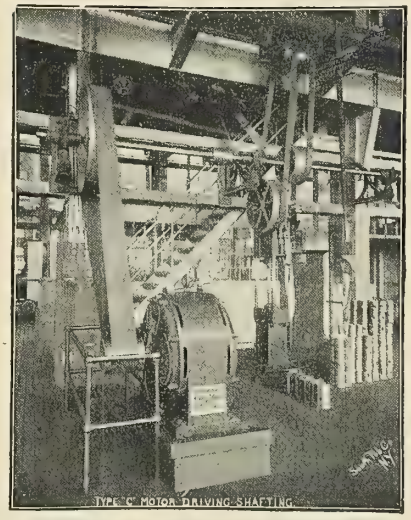
And that bears this trade-mark.

which is a Guarantee of Perfection.

There are IMITATIONS, but only one DIAMOND, and that's **"Eureka."** It's the cheapest good packing made; a friend to the ENGINEER, a profit to the user.

We make
INDICATORS, PLANIMETERS, REDUCING WHEELS, THREEWAY COCKS, &c.
JAS. L. ROBERTSON & SONS, 218 Fulton St, N. Y.
Branches: BOSTON—PHILADELPHIA.

Westinghouse MOTORS



Westinghouse Polyphase Induction Motor Driving Shafting.

Most economic for operating Machine Tools, Hoists, Cranes, Etc., in Docks and Shipyards.

Westinghouse Electric

& Manufacturing Co.

PITTSBURG, PA.

All principal cities in U. S. and Canada

61A

NEW WALWORTH QUARTERS.—The Walworth Mfg. Co., Boston, Mass., has removed its New York headquarters to rooms 807 and 808, Park Row Building, and will carry in stock a full line of specialties, the same as in the headquarters at Boston. These specialties include many devices well known in the marine field, such as pipe wrenches of different kinds, pipe cutters, pipe end reamers, pipe vises, cock valves of all sizes, pipe joints, etc.

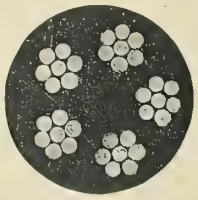
FEATHER WEIGHT COVERING.—A special line of non-conducting plastic covering is offered by the C. W. Trainer Mfg. Co., 89 and 91 Pearl street, Boston, Mass., which has some unusual features, and which is given the name of Feather Weight. It is composed of materials which, in proper proportions and in combinations, give excellent results in non-conducting elements. It is claimed to be practically indestructible, and its lightness, weighing as it does only 60 lbs. to the bag, makes it especially desirable for marine work. A bag contains enough to cover about 40 sq. ft., one inch thick, flat surface.

DUPLEX AIR COMPRESSORS.—The Clayton Air Compressor Works, 26 Cortlandt St., New York, have perfected a new type of air compressors and is now ready to fill orders for them. They are built in small and medium sizes and embody all of the latest improvements. This company recently doubled its facilities for work and yet is pressed to its utmost capacity to keep up with orders. Among recent orders the Clayton Company equipped five plants for the Brooklyn Heights Rapid Transit Co. with both compressors and pneumatic hoists and made similar installations in the plants of the Grassolli Chemical Co., De la Vergne Refrigerating Machine Co., General Chemical Co., Union Brewing Co., Gill Machine Works, White's Machine Shops and others. Export trade has increased to such an extent that the Clayton Co. is now sending compressors to all parts of Europe, as well as to Japan, Mexico and several countries in South America.

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire. The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

VARLEY DUPLEX MAGNET CO.—The Varley Duplex Magnet Co., 137 Seventh St., Jersey City, N. J., whiich was organized in 1893, has found it necessary to enlarge its scope and a new company of the same name has been organized with a capital stock of three million dollars, of which $500,000 is six per cent. cumulative stock and the balance common stock. The officers of the company remain as before The principal efforts of the company will be in the manufacture of electro magnets. The plant will be enlarged to many times its present capacity. Mr. Richard Varley will continue at the head of the company.

ELECTRIC HEATERS.—A complete line of electric heaters, such as would be used on board yachts and steam vessels of any kind where electricity is at hand is fully described in a catalogue issued by the Simplex Electric Company, 10 Franklin street, Cambridgeport, Mass. These include a complete line of air heaters, such as would be used for heating cabins and staterooms, which are finished in black, Japan gold, or white enamel as desired. The different sizes and lengths for different conditions. There are also portable stoves of all kinds, from the little heater for curling irons, shaving water and such small uses to stew pans, etc. The catalogue which this company issues describes, in detail, each type of heater.

QUEEN CITY STEERING ENGINE.—The steering engine manufactured by the Queen City Engineering Co., Buffalo, N. Y., has many special features claimed for it. It has proved especially efficient for tug boats and other boats of about this size. The steering gear is controlled by a large hand wheel in the pilot house, and is so constructed that by changing a pin from one hole to another, the gear can be used either for hand steering or for power steering. A tell-tale is attached to the gear and indicates the position of the rudder. The operation of this steering gear is noiseless. There is an automatic attachment whereby the steering is stopped when hard over, and this prevents the rudder from striking. A catalogue is issued by the manufacturers which gives several views of this steering gear and considerable information regarding it.

HYDE WINDLASSES.—The Hyde Windlass Co., Bath, Me., has been furnishing windlasses to some of the best known vessels which have been recently constructed and are being constructed. The steamer *Manna-Hatta*, which has just been delivered by the Harlan & Hollingsworth Company to the Ericsson Line for use between New York and Baltimore, was equipped with Hyde windlasses. Kelley, Spear & Co., Bath, Me., have just launched the fourth of the three-masted schooner barges for the Commercial Towboat Co. of Boston and which is to have a carrying capacity of nearly two thousand tons of coal and which is fitted with Hyde windlasses, hoisting engines, wrecking pumps, etc. The three-masted schooner which Sawyer Bros., Milbridge, Me., are building will also have windlasses, hoists, etc., supplied by the Hyde Company.

WESTON STANDARD PORTABLE DIRECT-READING

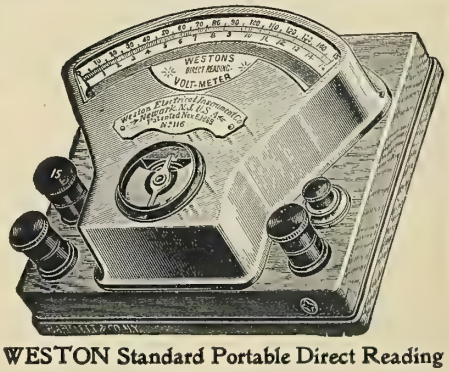
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

ELECTRICITY FOR SHOP DRIVE.—Owing to the great increase in the demand for blocks and other ship chandlery supplies, Wilcox, Crittenden & Co., Middletown, Conn., have made many improvements in their plant including the installation of electric motors.

FOSTER REDUCING VALVES.—The Foster Engineering Co., Newark, N. J., has just made a shipment of a considerable number of Foster reducing valves to the Maryland Steel Co., Sparrow's Point, Md., for use on the torpedo boat destroyers *Truxton, Whipple* and *Worden.* The aggregate weight of the valves is said to have been over three tons.

ELECTRICAL MACHINERY.—The Robbins & Myers Co., Springfield, Ohio, has opened an Eastern agency in the Electrical Exchange Building, 136 Liberty street, New York City, in charge of Mr. W. B. Van de Water. This company has recently enlarged its factory very much and is now in shape to fill orders promptly. Its specialties include a full line of direct current dynamos and motors. Direct connected plants for marine uses will be one of the specialties.

THE BUFFALO FORGE CO.'S ENGINES.—The Buffalo Forge Co., Buffalo, N. Y., finds a rapidly increasing demand for its engines for direct connected electric work. A feature which has been important in pushing the engine has been the fact of its running in oil in a dust and oil tight inclosure, dust providing automatic lubrication. The engine is furnished, however, with open frame if preferred. Its height is a minimum for the floor space occupied. In regulation it is very close. The parts are all accessible, and the entire construction of the engine is as compact as it can be made. This engine is very well illustrated in a picture size catalogue issued by the manufacturers. Several sizes are represented.

PNEUMATIC RIVETERS.—The Pedrick & Ayer Co., whose selling offices are at 85 Liberty St., New York city, have been giving much attention to perfecting a line of pneumatic riveting machines. The company is now prepared to furnish them of any special design of frame, from portable machines for light work up to the heaviest stationary riveters for ship and boiler work, including hinged riveters for intercostal work on vessels, where it is difficult to get at the rivets to drive them by hand. A decided change in the ratings of the company's machines is noticed in the new catalogue just issued, which gives the total effective pressure exerted on a rivet, with various sizes of standard frames, ranging from 43,000 lb. to 188,000 lb., also the length of the final effective stroke which carries this maximum pressure. Whether the rivets be 1½ in. or 8 in. in length, the construction of the machine takes up the difference instantly, without any adjustment.

SAVE THE DROPS

WANT SIX MORE.

GENTLEMEN—We have tested the Filter, running through some of the very rank oil that comes from our spindle borings, etc., and find it all right. Please forward six (6) more at once. Very Respectfully,
The Lodge & Shipley Machine Tool Co., Cincinnati, O.

THE CROSS OIL FILTER

Is in the largest power plants and shops in the World because it stands just such tests as the above. Experiment at our expense. Your Supply Man will send you one on approval. If not satisfactory, we pay the freight. Catalogue 42.

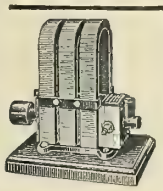
The Burt Mfg. Co. ***Largest Mf'rs of Oil Filters in the world.***
Akron, Ohio, U. S. A.

ACETYLENE SEARCH LIGHTS.—The Baldwin search light for use on yachts and launches is now being introduced by A. H. Funke, 101 Duane street, New York City. It is very compact, the total height from the deck being only 16 in. and the reflector only 8 in. dia. It gives sufficient power, it is claimed, to "pick up" objects at a distance of 250 ft. The lamp is self contained.

STURTEVANT FANS.—During the past winter the B. F. Sturtevant Co., Jamaica Plains, Mass., has been perfecting its designs and completing its full line of electric propeller ventilating fans for moving air against moderate resistance. These range in ordinary sizes from 18 in. to 60 in. and are provided with direct connected enclosed electric motors. In order to meet the summer demand for these fans the electrical department of the Sturtevant Co. is being worked to its full capacity.

SEMIBRONZE PACKING.—A packing especially designed for use on engines and pumps, called semibronze packing, is manufactured by the Charleston Metallic Packing Co., Charleston, S. C., with a New England office at 32 Oliver St., Boston, Mass. The special claims made for this packing are that it combines the advantages of fibrous packing, with those of metallic packing, that it will not scratch or groove the piston rod, that it requires no special care or attention, is as easily applied as any other packing, is extra lubricating and is practically frictionless. The company has received many orders from the United States Government for the Navy Yard at Norfolk, Va. The last order included a large amount of semibronze packing in sizes from one-quarter of an inch to one and one-half inches. This order was placed immediately after a very complete test was made. Any of our readers who are interested enough to investigate, will have a sample of the packing sent by writing to either the Charleston or Boston offices.

JONES UNDER FEED STOKERS.—Some years ago under feed stokers supplied by the Under Feed Stoker Co. of America, 218 La Salle St., Chicago, Ill., were installed on the tugboat *Perfection* of the Dunham Towing & Wrecking Co. of Chicago. President Dunham, in writing to the Stoker Company, said: "We ran this boat in the season of 1893, before we put in the stokers, with a natural draught with steam jet blower in the breeching. We used the best Pittsburg coal and were unable to get more than about two-thirds steaming capacity for the engine. Since putting in your stokers we have used the boat continuously night and day, burning soft coal screenings, and we are now enabled to get all the steam necessary to drive the engines wide open, and, strange to say, make but little smoke; in fact, I think it is the best smoke preventer that has been found for a tug boat. I am satisfied that we are now running the boat with one-third less expense for fuel; besides we get full power of the engine, which we could not do before. In regard to their practicability in marine work, will say that I think when they are put in right they will give satisfaction on any boat that burns soft coal." Two years later President Dunham wrote a similar complimentary letter to the Stoker Company and followed up his compliments by giving the company an order to equip the tug *Molly Spencer* with stokers. These stokers have been on the market for ten years and in the case of the tug *Perfection* were first put into operation in 1893.



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THE HOLTZER-CABOT ELECTRIC CO.
Boston (Brookline), Mass.

WE BUILD ONLY HIGH GRADE **LAUNCHES, YACHTS, SHIPS, BOATS and DINGIES.** **C. B. MATHER & CO.** Box 47, ROWLEY, MASS.

THE BETHLEHEM STEEL CO.—The Bethlehem Steel Co., 100 Broadway, New York city, has opened an office in Denver, Colo., which will be in charge of Mr. C. S. Burt, who was formerly president of the C. S. Burt Co., New Orleans. Mr. Burt's health has obliged him to make a change of climate, and as he represented the Bethlehem Steel Co. in New Orleans, he does not make a new connection with the company.

TWIN SCREW PASSENGER BOAT.—James Beggs & Co., 9 Dey St., New York city, have just completed and delivered for use in Cuban waters a twin screw boat 85 ft. over all and which draws 3 ft. of water when loaded. The hull is of wood, copper finished, and is sheathed with copper. She is fitted with compound engines. This company also furnished all of the parts, including surface condensers, pumps, etc. The speed will be about twelve miles an hour.

MALLEABLE IRON OILERS.—Hammer & Co., Branford, Conn., are offering a line of new and improved patent malleable iron oilers. The chief feature of these oilers is the method of affixing the brass spring bottom. This brass bottom is secured in its place by the use of a seating groove formed into the body of the cup at the point where soldering is usually done. A down turned flange of the brass bottom is forced into this groove, where it has a wide bearing and is then securely soldered. A steel spring is used rendering the bottom proof against setting. This oiler will attract the attention of many engineers, who will undoubtedly want to send for copies of the circular describing it.

A REMARKABLE TRIP.—The yacht *Zeta* weighed anchor from off Audubon Park, New Orleans, on the evening of July 8 last. Her owner made a cruise which consumed the summer and fall months. He made the trip up the Mississippi and through the canals to the Great Lakes, across the State of New York and down the Hudson River. From New York city he started for home and followed the coast line of the Atlantic to the Florida cape and then skirted the shore line of the Mexican Gulf to New Orleans. The *Zeta* is 47 ft. 8 in. on the load water line, 9 ft. beam, and draws about 3 ft. of water aft. Forward there is a strong rail and aft there was a rail, but the sea, off the Florida coast, carried it and the yawl overboard. The cabin house extends across the beam of the craft, leaving only a few inches on each side for a footing. In fact, there is no deck on the sides of the cabin, and only a small deck forward of the pilot house and aft of the engine room. The sides of the cabin are almost entirely made of glass, which gives plenty of air and light to the apartments within. The pilot house serves both as a place for the person at the wheel and sleeping apartments. A polished wood partition separates the pilot house from the main saloon. In this comfortably furnished room there are two seats with folding cushions, and there is accommodation for four persons. A companionway leads along the starboard side of the vessel to the engine room and between the main saloon and the engine room is a stateroom, which is very comfortably furnished. The compact Sintz propelling engine requires but little space and leaves plenty of room for the galley and china lockers. In the run of 6,000 miles, the engine did not fail at any time to do its full duty. The engine was furnished by the Sintz Gas Engine Co., Grand Rapids, Mich.

ONLY A FEW

Bound Volumes for 1899

of MARINE ENGINEERING remain unsold.

Two Volumes, Price $2.50 each.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

COMPOUND ENGINE FOR SALE.

Fore and aft compound for sale; cylinders 16 inch and 32 inch by 26 inch stroke of new pattern, strong and substantial; price low and delivery quick. BELL'S STEAM ENGINE WORKS, Buffalo, N. Y.

MANAGER OF EXPERIENCE SEEKS POSITION.

A man with many years of experience and with large acquaintance in the field of steam specialties seeks connection with a house in this trade. Address MANAGER, care MARINE ENGINEERING.

ENGINEER WANTED AS SALESMAN.

Wanted. A thoroughly competent Marine Engineer as salesman for Valves and Steam Specialties. One familiar with Philadelphia shipbuilding trade preferred. Address SALESMAN, care MARINE ENGINEERING.

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HENRY L. EBSEN,

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CONSULTING AND CONSTRUCTING ENGINEER.

Manufacturer of **Screw Propellers** for Usual and for Special Work.

The Allen Dense Air Ice Machine for Steam Vessels.

41 MAIDEN LANE, NEW YORK.

A LONG SERVICE.—Mr. Calvin G. Williams, who has been clerk of the Board of Steam Vessel Inspectors at New London, Conn., since Aug. 19, 1875, has retired. There is probably only one other clerk in the service who has served a longer time.

MOSHER BOILERS.—There is now under construction at the Crescent Shipyard, Elizabeth, N. J., about 20,000 I. H. P. of water tube boilers of the Mosher type. These boilers are for various naval vessels and the new fast boat *Arrow*. They are being manufactured for, or under the direction of, the patentee, C. D. Mosher, 1 Broadway, New York.

NAVAL ARCHITECT AND ENGINEER.—An office has been opened at 97 Water St., New York, by Theodore Lucas, who is now open for professional engagements. In a statement of his experience, Mr. Lucas refers to his work "in charge of calculation and estimates at Cramp's shipyard" for a large number of vessels; also as designer of engines for several well known yachts. Mr. Lucas makes a specialty of ship calculations.

DOWN DRAFT FORGES.—The Buffalo Forge Company, Buffalo, N. Y., reports a large demand for down draft forges. There has been a steadily increasing demand for this type of forge, and a number of letters have recently been received from concerns which have them in operation. The Kilson Machine Company, Lowell, Mass., writes: "We have had no trouble with smoke from our blacksmith shop since their adoption." The superintendent of the State Reformatory at Elmira writes: "If I were to install a new plant I should, if possible, secure down draft forges, because we have had such good experience with yours, and I should try to secure an installation of your forges."

MARINE ENGINEERS' BENEFICIAL ASSOCIATION.

Established 1874.

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GEO. UHLER, National President,
1609 Brown St., Philadelphia, Pa.

FRANK A. JONES, National Vice-President,
1616 La Fayette St , Alameda, Cal.

GEO. A. GRUBB, National Secretary,
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JOSEPH BROOKS, 6323 Dicks Ave., Philadelphia, Pa.
JOHN McG. STERRITT, 129 Broad St., New York, N. Y.
JAMES H. TAYLOR, 1513 Jefferson St., Baltimore, Md.

This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, ROBT. A. NOONE, 498 Swan St., Buffalo, N. Y.
" 2, JOHN B. HEYWARD, 191 Willard St., Cleveland, O.
" 3, JOHN McCLURE, 54 High St., E. Detroit, Mich.
" 4, JAS. A. MACAULEY, 5902 Michigan Ave., Chicago, Ill.
" 5, HARRY P. WALKER, 418S. Patterson Park Ave., Baltimore, Md.
" 9, WM. BRIDGES, 784½ 12th St., Milwaukee, Wis.
" 13, SAM'L M. HALL, 2232 S. 5th St., Philadelphia, Pa.
" 15, of New Orleans, La., ALFRED BIRKS, 315 Atlantic Ave., Algiers, La.
" 27, N. P. SLATER, 1010 Garfield Ave., Bay City, Mich.
" 30, JOHN W. FARROW, 427 Pearl St., Pittsburg, Pa.
" 33, W. J. DU BOIS, Tompkinsville, S. I., New York.
" 35, WM. WARIN, 36 East St., San Francisco, Cal.
" 36, JOSEPH THOMAS, 57 Sea St., New Haven, Conn.
" 37, E. D. LOCK, 1304 S. 19th St., Toledo, O.
" 38, W. H. COLLIER, 73 Starr Boyd Building, Seattle, Wash.
" 39, FRANK W. BUCHNER, 124 Chestnut St., Erie, Pa.
" 40, H. N. POWELL, 1626 Ave. N½, Galveston, Tex.
" 41, J. W. COLLYER, Goble, Columbia Co., Ore.
" 43, GEORGE A. MILLER, 828 Wall St., Port Huron, Mich.
" 44, CHRIST DAHL, 534 W. 2d St., Manistee, Mich.
" 46, D. W. FARRELL, Clayton, N. Y.
" 47, ARCHIE DE GRAW, 533 Division St., Sault Ste. Marie, Mich.
" 48, JOHN ERVING, 1510 Monroe St., Sandusky.
" 51, DONALD McMILLAN, 105 Fourth St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich.
" 55, ARCHIE STALKER Electric Light & Power Plant, Cheboygan, Mich.
" 57, E. B. MEEKER, 71 Abeel St., Rondout, N. Y.
" 58, GEO. D. ANDERSON, Georgetown, S. C.
" 59, WALTER M MILLER, 221 Saratoga St., E. Boston, Mass.
" 62, NATHAN S. LAWRENCE, 30 Connecticut Ave., New London, Conn.
" 65, WM. McCARREL, 8 Vernon St , Charleston, S. C.
" 67, WM. S. BRADLEY, Saugatuck, Mich.
" 70, CHAS. T. SMITH, 211 Bond St., Astoria, Ore.
" 72, THOMAS NAVAGH, 40 Lake St., Oswego, N. Y.
" 73, E. B. KELLOGG, 711 W. Walnut St., Green Bay, Wis.
" 76, ORSON VANDERHOET, Grand Haven, Mich.
" 77, JOS. WEBER, 820 Buffalo St., Manitowoc, Wis.
" 78, F. A. REHDER, 29 W Superior St., Duluth, Minn.
" 80, R. P. COOK, 46 Elm St., Albany, N. Y.
" 81, JAS. L. SWEENEY, 204 E. Saragossa St., Pensacola, Fla.
" 82, FRED H. GOWELL, 4227 Middle St., Bath, Me.
" 84, N. K. LUDLOW, 15 S. Royal St., Mobile, Ala.
" 85, ARTHUR J. IRWIN, 427 Washington Ave., Alpena, Mich.
" 86, SHERMAN A. SMITH, 412 Terrace Ave., Marinette, Wis.
" 87, GEO. B. MILNE, 1003 Trumbull St., Detroit, Mich.
" 88, C. O. CHAPMAN, S. B. Canal, Sturgeon Bay, Wis.
" 89, GEO. A. TATE, 141 North Water St., Ogdensburg, N. Y.
" 91, MARTIN JOYCE, 8 Spruce St., Harbor Sta , Ashtabula, O.
" 92, JOSEPH D. BUDD, P. O. Box 50 Saginaw, E. S., Mich.
" 93, W. J. COOK, 2324 G. St., N. W., Washington, D. C.
" 94, GEO. R. JONES, Box 222, Washington, N. C.
" 101, J. C. BILLUPS, Ave. A, Atlantic City, Norfolk, Va.
" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H. HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

The copper knife switches manufactured by the Bossert Electric Co., Utica, N. Y., are described in price list S, which is now ready for distribution. The list is an 8 page folder, in which the special features of the switches are fully described. The tables on the last page give the capacities of the switches.

A pocket size booklet has been issued by James Bonar & Co., Pittsburg, Pa., giving some fitting remarks to a purchaser of boilers. Although rather more sationary than marine, reference is given to several specialties handled by the firm which will interest marine men. These include the Ashton pop safety valves, Reliance water columns, Bonar gauge cocks, Ashton pressure gauges, etc.

The subject of water-tight doors, as applied to the U. S. cruiser *Atlanta,* has a special bulletin devoted to it, issued by the Sprague Electric Co., 527 West 34th St., New York. The bulletin comprises 18 pages, and contains a number of full-page engravings, showing the manner in which the doors are constructed and operated. The text gives a complete detailed description to accompany the illustrations, and it also tells of tests which were made on the *Atlanta,* and refers to an installation made on the American liner *St. Paul.*

Marine Glasses seem to be such a necessity nowadays that our readers will want to send for a copy of a 24-page booklet issued by the Bausch & Lomb Optical Co., Rochester, N. Y. This booklet describes in much detail the Bausch & Lomb-Zeiss stereo binoculars, which are as far ahead of the ordinary marine glasses in real usefulness as an ocean steamship is of a canalboat. The construction of the glasses is fully explained in the booklet, and the magnifying power is made very apparent by pictures showing tests of one glass against the other. A picture on the last page very graphically shows the great advantage the compact, new style of glasses has over the ordinary binoculars.

Users of tackle blocks will find much of interest in the catalogue on this subject issued by the Union Hardware Company, Torrington, Conn. The catalogue is of pocket size, and comprises 32 pages and cover. All kinds of blocks are illustrated, and accompanying each type are tables giving dimensions and prices, with both common iron bushings and patent roller bushings. Among the different styles of blocks referred to are rope strapped and iron strapped blocks, heavy tackle blocks, wood and steel snatch blocks, hoisting blocks in wood and metal, and wire rope blocks of different kinds. Several pages are devoted to improved, self-adjusting five roller bushings and sheaves. The balance of the catalogue is devoted to such specialties as mast-head trucks and balls, dead-eyes and bull's eyes, calking mallets, belaying pins, tackle and eye block hooks, suction pumps, etc.

Gas engines and hoists, as manufactured by the Weber Gas & Gasoline Engine Co., Kansas City, Mo., have a catalogue of 72 pages and cover devoted to them. The cover is black, with the printing in green and silver. The text pages are of yellow paper, printed in black. The first part of the catalogue is devoted to the stationary engine of all sizes, and much information is given regarding the construction of the engine and its use for various purposes. The text is so complete as to give a good deal of information regarding the care and operating of the engine. The balance of the pages are devoted to special applications of engines, such as portable outfits of many types, and hoisting engines. Several hoists of large size are shown, such as would be used in mines, and a number of smaller ones, especially adapted for use on wharves and docks, as well as on board ship for handling cargoes and other hoisting purposes. Many testimonials show the great variety of uses to which this engine is being put.

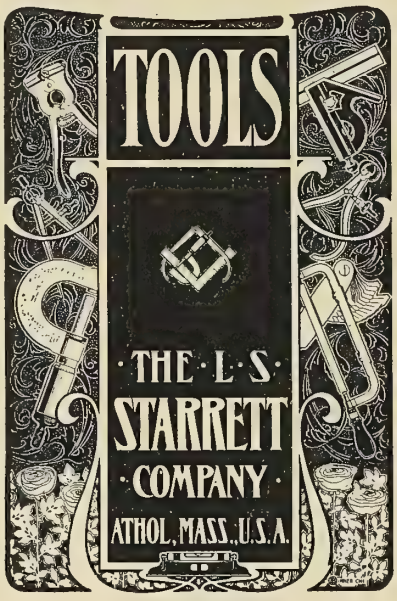
The subject of electric overhead transportation has a special circular devoted to it, issued by the Consolidated Telpherage Co., 20 Broad St., New York. This system has been amplified to such an extent that it is now adapted to carrying large and heavy loads, such as would be necessary in loading or unloading fuel, ore, and other such products, either when the vessels are alongside a pier or in an offing. The circular contains a number of illustrations, giving an excellent idea of the system.

The Bullock Electric Manufacturing Company, Cincinnati, Ohio, issued a very handsome souvenir of its factory and products for distribution at the recent convention of master mechanics and master car builders. It is distinctly a book of pictures, as each page has a picture, either of a generator or motor, or of some adaptation of electricity for direct connected work in one form or another, or an illustration of some department of the new factory of this company. The pages are printed only on one side, and are neatly inclosed in a border of different colored ink.

Any young men just entering marine work who seek to raise their papers or in other ways make themselves more efficient by means of study will be interested in two books just issued by the International Correspondence Schools, Box 1111, Scranton, Pa. One booklet, entitled "Support Yourself while Learning to become a Mechanical or Electrical Engineer," is devoted almost exclusively to testimonials from men who have taken some of these courses and to a concise statement of what the requirements are for going on with this work. Outlines of study for several courses are given. The other booklet is made up entirely of testimonials, "Home Endorsements," as stated in the title. On the back cover are concise statements of twenty distinct schools in this institution for educating yourself by means of correspondence.

Every wearer of overclothes will be interested to read the booklet just issued by H. S. Peters, Dover, N. J., which is devoted to the Brotherhood overalls and other overclothes which he manufactures. The book is bound in paper and comprises 16 pages, finely printed on coated paper. The text is very fully illustrated, showing in considerable detail the manner in which these overclothes are made. There are pictures of the factory and of the several departments in which the clothes are cut, made, checked, and shipped. The text is a straightforward, businesslike statement of the good qualities of the Brotherhood clothes. Each special style of garment is fully described, and an excellent engraving shows the manner in which the garment is worn. These include apron overalls, pants overalls, combination coat and vest, sailors' shirts, working shirts and a number of other styles of garments. Copies of the book can be had by writing to the manufacturer.

Steamship Radiators of all kinds, as manufactured by the Fowler & Wolfe Manufacturing Company, The Bourse, Philadelphia, Pa., have a special catalogue devoted to them which has just been issued. Illustrations are given of the many types of radiators, several of which are used on shore as well as on board ship. The many illustrations show the radiator in different forms, from the installation of one section to a considerable number of sections. As the pages are 7 by 9 inches in size, the illustrations are large enough to show the manner in which the sections are ornamented. The special feature of these radiators, emphasized throughout the catalogue, is that they have a maximum surface with a minimum space. The text gives descriptions of the various illustrations and quite an amount of information regarding the subjects of heating and the installing of radiators. A list of steamships is given upon which radiators have been installed, and a full page illustration shows a stateroom fitted with Fowler & Wolfe radiators.



SEND FOR

NEW CATALOGUE

No. 16 L

112 PAGES—ILLUSTRATED

FREE

Injector and Ejector Catalogue No. 7 has just been issued by the Sherwood Manufacturing Co., Buffalo, N. Y. It is bound in embossed cover of three colors, and contains 32 pages of illustrations and text. A complete index is the first thing in the catalogue. Then follows an article of two pages concerning injectors. The balance of the catalogue is devoted to the specific subject of injectors and ejectors as manufactured by this company for all purposes. The features of each specialty are fully emphasized, and sectional views are given, with the parts numbered, so that the descriptive matter will be thoroughly understood. Several tables and price lists are also given, together with a few testimonials recently received.

Dean Bros. Steam Pump Works, Indianapolis, Ind., have two new catalogues ready for distribution. Catalogue No. 40 contains lists of parts of pumps, directions for operating pumps, and tables of information. The catalogue comprises 56 pages, and at least half of the space is taken up by illustrations of pumps of several kinds, together with parts of pumps, which are properly numbered, so that ready reference can be made to any separate part. The text applies directly to the several illustrations, making the catalogue one of much value to any user of pumps. There is also quite a little information on hydraulics, boilers, engines, rules for the management and care of stationary boilers, etc. The second catalogue is devoted to duplex steam pumps, and is Special Catalogue No. 38. It is the same size as is the other, and comprises 40 pages and cover. This catalogue, like the other, contains numerous illustrations and tables, together with the necessary descriptive matter. Among the many types of pumps referred to are the admiralty style, ballast and boiler feed pumps, compound pumps, circulating pumps, fire pumps, etc. A copy of either or of both of the catalogues may be had upon application to the manufacturer.

Something

YOU SHOULD READ

GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?

NO CHARGE

Joseph Dixon Crucible Co.

JERSEY CITY, N. J.

The Latrobe Steel Co., Girard Building, Philadelphia, Pa., has issued a catalogue bound in flexible cloth, devoted to weldless rolled steel flanges, and other specialties. The text will prove interesting reading matter to those of our readers who are interested in this subject.

Users of small steam plants of from two to four horse power for launches or yachts, or on board ship where small power is required, will find an instructive catalogue on this subject in the one issued by the Shortt Duplex High Speed Engine Company, 143 Liberty street, New York Many special features are claimed for this outfit, among others that it affords great power in a small space, that it is simple in construction, easy to operate, that there are no links, no eccentrics, no valve stems, no stuffing boxes, no dead centers. A number of illustrations are given, showing the construction of the engine and of several parts, and the boiler is described and illustrated in a similar way.

Gas Engine Igniters.—Users of gas engines who have trouble with electric sparks will find an interesting circular, issued by the Holtzer-Cabot Electric Co., Brookline, Mass., describing the gas engine igniter which this company manufactures. This igniter has been on the market for some time, so is not a new nor an untried one.

Users of centrifugal pumps will be interested in Bulletin 103, just issued by the Prindle Engineering Co., 120 Liberty St., New York, describing one of the types of pumps manufactured by this company. This company has made a specialty of centrifugal pumps of all kinds, from the smallest one used on board ship to the largest size for dry dock service. A table in this circular gives considerable information regarding the capacity and lift of Prindle pumps of various sizes.

Those of our readers interested in acetylene search lamps, lanterns, and lamps of other kinds, will find an interesting circular devoted to the subject which is issued by the Frank E. Bundy Lamp Co., Elmira, N. Y. Ten lamps of different kind are illustrated, and concise descriptions and price lists are given. Two lamps of particular interest to our readers are the searchlight, which is designed especially for large launches and yachts, and the lantern, which is claimed to be safe for use in the cabin or anywhere. This lantern, like the searchlight, does not smoke, requires no oil, is odorless, and gives a very strong light.

The 1900 catalogue devoted to the Metropolitan injectors is just issued by the manufacturer, the Hayden & Derby Manufacturing Co., 85 Liberty street, New York city. The catalogue comprises 44 pages, 6 by 9 inches in size, and is about equally divided between illustrating and describing the Metropolitan automatic injectors, the Metropolitan "1898" injectors, the Metropolitan double tube injectors, and the H. D. ejectors. A good deal of attention is given in the text to general considerations and to the special subject of applying and caring for ejectors, and there is considerable space devoted to suggestions for piping, repairs, etc. Copies of the catalogue are now ready for investigation.

Lundell generators, direct connected and belted type, have a special catalogue, No. 100, devoted to them, which has just been issued by the Sprague Electric Company, 527 West 34th street, New York city. It is bound in a very neat cover of green paper, printed in red and black. The text comprises 40 or more pages, and to say that the catalogue is of the same quality as all of the Sprague publications tells the story. The size is 7 by 9 inches, and as a number of the illustrations occupy a full page, and are most excellent half tone engravings, the value of them will be at once appreciated. The text is complete, and a number of tables of sizes, dimensions, etc., are given, adding much to the value of the catalogue as a book of reference.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

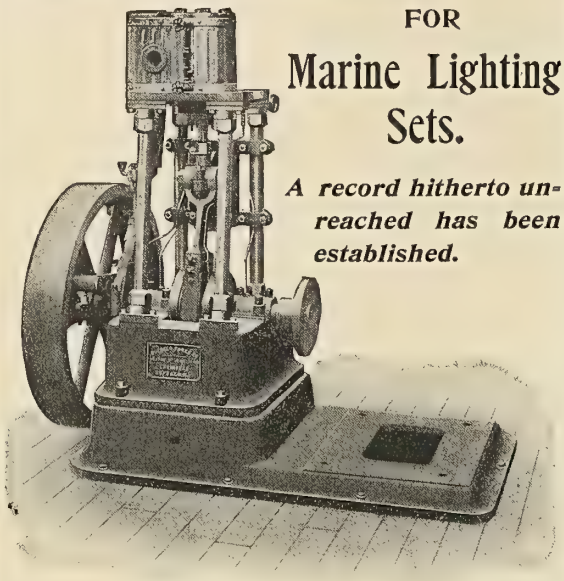
SEND FOR CATALOGUE. Prices and Terms on Application.

N. Y. Office: Park Row Building.

Buffalo Engines

FOR

Marine Lighting Sets.



A record hitherto unreached has been established.

Marine Type Upright. Extended Base for Connection to Generator.

New Engine Brochure on Application.

Buffalo Forge Co., Buffalo, N. Y.

NEW YORK OFFICE: 39 Cortlandt Street.

GOOD PAINT

Is durable, impervious, unchanging in color, firmly adherent. Combination paints based on zinc white have all these qualities.

OTHER PAINTS

Require explanations and apologies. The addition of **Zinc White** obviates the necessity for either.

SENT FREE:
Our Practical Pamphlets,
"Paints in Architecture,"
"The Paint Question."

The New Jersey Zinc Co.
71 Broadway
NEW YORK

BUSINESS NOTES.

SAILS AND COVERS.—Robert E. Morton, 26 South street, New York, who has been in the sail making business for many years, is now making a specialty of either hand or machine sewed sails, barge covers, canvas covers, tarpaulins, and canvas goods of every description.

A SPEEDY YACHT.—A handsomely fitted steam yacht has just been built by Hiram Weller's Sons, Trenton, N. J., for Mr. S. B. Wetherill, of Philadelphia. The specifications stipulated that the boat should make a speed of 14 knots. She is a twin-screw boat, and the engines were installed by the Reeves Machine Co., of Trenton. On the recent trial trip the yacht is understood to have made a speed of 15.6 knots before her machinery had been properly "shaken down." The result is a high compliment to the engines of the boat. The boiler was furnished by the Almy Water Tube Boiler Co., of Providence, R. I.

DRAUGHTSMEN'S SUPPLIES.—The Elliott Electric Blue Print Co., Pittsburg, Pa., met with a great misfortune on June 29 in the loss of its office and factory by fire. The company promptly made arrangements for another factory, and within ten days had sufficient stock on hand to give prompt attention to orders. Since then the company has entirely fitted its new plant, and is now able to furnish all of its products without delay, the new machinery having been installed and put into operation. As this machinery is of the very latest type, the company is in better shape than ever before to fill orders of any size. This company prides itself on the quality of its goods, and claims to be furnishing the most perfect printing paper that can be made The many specialties include blue and black print papers of all kinds, detail and drawing papers, tracing and linen papers, drawing tables and drawing materials—in short, everything in the line of draughtsmen's supplies.

SELDEN PATENT PACKING.—The usual experience of those who use the Selden patent packing, manufactured by Randolph Brandt, 38 Cortlandt street, New York, is reflected in that of a chief machinist on one of the fastest torpedo boats in the navy, who writes as follows: "We have been using the Selden patent packing on this boat for two years, against 250 lbs. pressure, and have no trouble whatever. Our engines are four-cylinder triple expansion of 2,200 I. H. P. each. We renew the packing around piston rods and valve stems once in six months, and on these boats, where economy in water is the principal factor in the successful working of the boat, you can imagine our appreciation of a packing that gives no trouble."

STEEL BOILER TUBES.—Users of steel boiler tubes will be interested in knowing that the United States government has ordered cold drawn seamless steel tubes for all the boilers to be used in the new vessels for which appropriations have recently been made. The United States naval authorities, who are extremely conservative in making changes, have long favored charcoal-iron lap-welded tubes, and it was only within the last few years that they consented to try steel; and the seamless steel tube has proved so satisfactory that they have finally decided to use nothing else. The British government made exhaustive tests to find out what kind of tubes would best withstand the stresses of boilers used in torpedo boats, and decided in favor of steel. That was several years ago, and nothing but steel tubes have been used in British naval boilers since that day. The basic open hearth steel used in making tubes nowadays has about the same characteristics that the very best grades of charcoal iron had twenty years ago. The Atlantic Tube Co., whose head offices are at 1209 Park Building, Pittsburg, Pa., and New York sales office at 10 Havemeyer Building, in charge of Mr. C. F. Davenport, makes a specialty of cold drawn seamless steel tubes.

CORK TILING.—The Cork Floor & Tile Co., 17 Milk St., Boston, Mass., has installed its products on a number of vessels lately, the most conspicuous ones being the *Pleiades* and the *Hyades*, which were built by the Maryland Steel Co., Sparrow's Point, Maryland, for the Boston Tow Boat Co.

STEAM SEPARATOR.—Engineers and others who are interested in the subject of economy of space in the engine room as well as the economical running of the steam plant, will find in the Potter separator a device which has been introduced on leading steamships. This separator is manufactured by the Potter Separator Co., 39 Cortlandt street, New York. A special claim made for this separator is that it is placed inside of the boiler.

ELECTRIC COOKING.—The Simplex Electric Co., Cambridgeport, Mass., is offering a line of electric kitchen equipments which will be of much interest to those of our readers who are on vessels which have electric current at hand. A circular issued by the company contains a picture of a compact kitchen equipped for electric heat. With such equipment there can be no danger from fire, however much the vessel may roll or pitch, and yet cooking of all kinds can be done. The kitchen outfit depicted is surprisingly cheap, costing only $33.95 for two six-inch stoves, one oven, three plug switches, three double conductor cords, one plated copper three-pint tea kettle, and a plated copper six-inch stew pan.

DEARING WATER TUBE BOILERS.—The Dearing Water Tube Boiler Co., Detroit, Mich., reports an excellent inquiry for its water tube boilers. It has been the aim of this company to supply a boiler which should possess distinctive features and be adapted for use in vessels where it is desired to have a good, all round boiler. One of the special features claimed for this boiler is that it will carry a steady water level either with natural or with forced draft, and will deliver dry steam under all circumstances. These boilers are claimed to be exceptionally good steamers, and to have a maximum of capacity with a minimum of space and weight. Any of our readers interested in the subject of water tube boilers should send for a copy of the catalogue which this company issues.

DURABLE WIRE ROPE.—The special qualities of the patent rope manufactured by the Durable Wire Rope Co., 288 Congress street, Boston, Mass., have attracted a great deal of attention in both the merchant marine and among yachts this season. The rope has the good qualities and the wearing surface of hemp rope and the strength of wire rope. It can be used in place of either manila or wire rope, with the same blocks. This is an important feature, which has helped much to introduce the rope. The durability of this rope is claimed to be many times that of manila, and more than twice that of wire rope. Its flexibility is much greater than any wire rope could have, and is claimed to be even more than manila rope of equal strength. Other important features claimed for the rope are that it is water-proof and rust-proof.

STEEL SHAFTS AND ENGINE FORGINGS.—We are informed by the Bethlehem Steel Co., 100 Broadway, New York, that it has received the order for the entire equipment of steel shafts and engine forgings for the new steamer which the Harlan & Hollingsworth Co., Wilmington, Del., is building for the Mallory Line. The forgings are to be of high grade, open hearth steel, forged under hydraulic pressure, and carefully annealed. The Bethlehem Company is also making shafts and forgings for the 11,000 ton steamer which the Union Iron Works, San Francisco, have under construction for the American Hawaiian S. S. Company. The specifications in this case insisted that this work should be done by the Bethlehem Company. This company has received other similar orders lately for its shafts and forgings for use on locomotives, and on a number of large stationary engines and pumps.

THERE IS BUT ONE EUREKA Packing

And that bears this trade-mark.

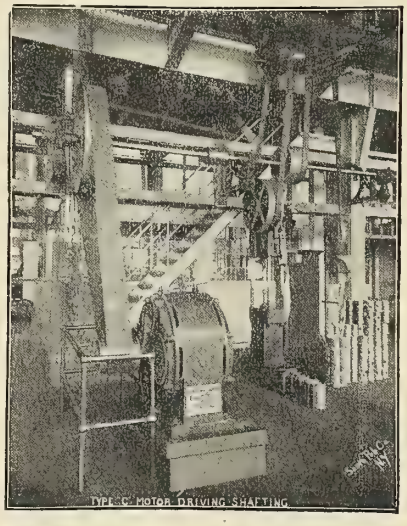
PATD EUREKA TRADE MARK

which is a Guarantee of Perfection.

There are IMITATIONS, but only one DIAMOND, and that's "Eureka." It's the cheapest good packing made; a friend to the ENGINEER, a profit to the user.

We make
INDICATORS, PLANIMETERS, REDUCING WHEELS, THREEWAY COCKS, &c.
JAS. L. ROBERTSON & SONS, 218 Fulton St, N. Y.
Branches: BOSTON—PHILADELPHIA.

Westinghouse MOTORS



Westinghouse Polyphase Induction Motor Driving Shafting.

Most economic for operating Machine Tools, Hoists, Cranes, Etc., in Docks and Shipyards.

Westinghouse Electric & Manufacturing Co.

PITTSBURG, PA.

All principal cities in U. S. and Canada

1A

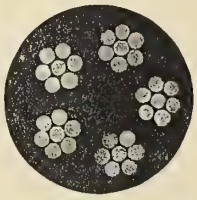
DIRECT STEAM SEPARATOR.— The Direct Separator Co., Syracuse, N. Y., has introduced its separator very thoroughly to the stationary trade, and is now giving attention to the marine separator. This separator is designed to take the place of the "dry pipe" in the marine boiler, where there is not room for a separator near the engine. The construction of this device is very simple, and separates the water from the steam very thoroughly. However much the vessel may pitch or roll, it is asserted that the water cannot under any conditions enter the steam current. The separator is readily applied, especially to boilers of the Scotch type. The company issues a most excellent catalogue, a copy of which will be sent to all who are interested in this subject.

WATER-TIGHT DOORS.—Those of our readers interested in the subject of water-tight doors will be interested in the system which is being extensively introduced into many of the naval vessels under the patents of the Long Arm System Co., Cleveland, Ohio. The subject of water-tight doors is one to which the rules for marine insurance are requiring an increasing amount of attention. A considerable percentage of the total cost of a large vessel is included in the bulkheads, and these bulkheads in the large compartments are bound to have doors in them. It is these doors that affect the insurance to a great extent. The Long Arm Company claims that for about one per cent of the total cost of the vessel it can make these doors absolutely safe and surely controlled from the bridge, and at the same time leave them individually under the control of any man at any door, either for ordinary use or during an emergency. This additional safeguard greatly reduces the insurance risks, and is an important feature to be considered in connection with every new vessel. The new battle-ship *Maine* will have this system for 30 doors and 10 protective deck hatches. Similar equipments have been ordered for the battle-ship *Missouri*, and equipment for four monitors.

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire. The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

THE UNITED STATES MINERAL WOOL CO.—The United States Mineral Wool Co., which had offices at No. 2 Cortlandt St., New York, for a number of years, has found it necessary to secure larger quarters, and has taken a suite of rooms in the Central Building, 145 Liberty St. This company is making a specialty of mineral wool for all uses, and is prepared to submit quotations and any other information which may be desired for any work in which mineral wool is used.

THE GREENPORT BASIN & CONSTRUCTION CO.—The Greenport Basin & Construction Co., Greenport, Long Island, which has been well known, particularly in yachting circles, for its work, has been incorporated into a stock company. Frederick M. Hoyt is the president; Charles L. Flack, vice-president, and C. Pliny Brigham, secretary and treasurer. The capital stock of the company has been considerably increased, and extensive improvements will be made immediately, with facilities for building new vessels and repairing old ones. The basin and storage facilities are also being very largely increased. With the work in hand completed, the company will be in excellent condition to build larger vessels.

LUBRICATORS.—Our many readers who are interested in the subject of lubricators will find a very interesting catalogue on the subject issued by the Detroit Shipbuilding Co., Detroit, Mich., devoted to the subject. There is a complete line of the Kirby lubricators of several types. These include the double connection lubricator, designed especially for use on marine engines. In these lubricators the sight feed glass is easily cleared by simply opening the valve. This also assists in the operation of the lubricator, as it causes the steam current to pass in the direction of the normal feed. Quite a line of oil pumps and glass oilers is shown. A number of grease cups are also illustrated and described.

THE KITTS STEAM TRAP.—A steam trap which has been on the market for some years, and which is especially designed for use in high pressures, is the Kitts steam trap, manufactured by the Kitts Manufacturing Co., Oswego, N. Y. This trap is of very simple construction, and can be easily opened from the top, and the entire working parts removed for repairing or other purposes. The working parts are suspended from a cross bar by means of compound levers. A long lever carries a weight at one end and a valve at the opposite end, having a very short fulcrum. On the other, or shorter lever, is suspended an open bucket. On the top of the cross bar is a sediment chamber. Although the trap is constructed with weights, the principle is such that the rolling or pitching of a vessel cannot have any serious effect on the action of the trap. The operation of this trap is purely a mechanical one. Several claims are made for this trap, among them that it will work under any pressure, that it has no balls or floats, that it is very small and compact and that it never blows steam, because it is always half full of water.

WESTON STANDARD PORTABLE DIRECT-READING

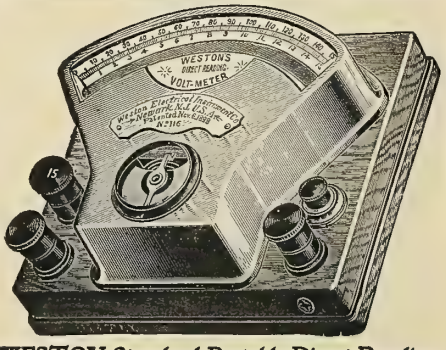
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

THE WILLIAMS UNIVERSAL RATCHET.—The Waterbury Tool Co., Waterbury, Conn., which manufactures the Williams Universal Ratchet, has found such a demand for a small, compact ratchet that at the suggestion of the Navy Department it is now offering one that is small enough to use under almost any conditions.

LOW WATER ALARM.—Several serious mishaps have occurred lately because of low water in the boilers, and such accidents could undoubtedly have been avoided by the use of a mechanical device which would have given warning of the state of the water. Among the devices of this kind is the Mathews electric low water alarm, which is manufactured and sold by the Electric Boiler Protection Co., 39 Cortlandt street, New York. This is a new device which has just been put on the market, and full particulars are furnished by the manufacturers to all inquirers.

MOULDED RIBBED AND SPIKE LIGHTS.—The J. R. Donnelly Co., 54-60 Classon avenue, Brooklyn, N. Y., manufacturer and dealer in all kinds of glass for ship use, publishes in our advertising columns a list of moulded ribbed and spike lights, on which discounts are quoted on application. This company is also putting on the market a flat polished deck light without any ribs, for use where the space will not admit of using the moulded lights. Correspondence is solicited in reference to this new light, which, by the way, is very much cheaper than the moulded lens, while being just as strong and efficient.

SAILS FOR YACHTS AND SCHOONERS.—When Wilson & Silsby moved into their new sail loft on Rowe's Wharf, Boston, Mass., about a year ago, they supposed they had allowed space enough for all possible emergencies; but so great has been the firm's business this season that every bit of floor space has been fully utilized, and a great deal of night work has been done since early in the season. This firm has furnished sails for many of the leading yachts which have come out this season, besides new suits for many of the older yachts, and has also done quite an extensive business in furnishing sails for schooners and other vessels.

ASBESTO-METALLIC GOODS.—The asbesto-metallic specialties which are manufactured by the C. W. Trainer Mfg. Co., 89 Pearl street, Boston, Mass., are meeting with an increasing demand all over the world. The company has found it necessary to establish new agencies, and now the packings, gaskets, and other specialties manufactured by this company are for sale by the following agents, in addition to the home office: In Portland, Oregon, by J. M. Arthur & Co.; in Chicago, by the Goodsell Packing Co.; in Lockland, Ohio, by the Phillipp Carey Mfg. Co.; in St Louis, by E. W. Hodgkins; and in Salt Lake City, by the George M. Scott Strevell Hardware Co.

SHOP SAWS.—The Q. & C. Co., Western Union Building, Chicago, and 107 Liberty street, New York, is offering a line of shop saws which will be interesting to users of such machines. The special claim made for these saws is that they require no attention except to put on the work to be cut off, which is done by men tending other machines.

OIL FILTERS.—The Imperial Steel Works, owned and operated by the Japanese Government, have placed an order for the complete equipment of the plant with Cross oil filters with the Burt Mfg. Co., Akron, Ohio. As the Burt company was in competition with the best manufacturers of filters in Europe and with other American makes, it regards this as a distinct triumph for the Cross filter. The Imperial Steel Works are probably the most important plant of the kind in Japan.

A FLATTERING OPINION.—The Kenney Company, 72 Trinity place, New York, sole manufacturer of Flushometers, a system for the manipulation of water closets that supersedes the old-fashioned, noisy, and dirty overhead tank, has received from General E. E. Olcott, of the Hudson River Day Line, the following indorsement: "Three years ago I ordered some of your Flushometers for use on our steamers *Albany* and *New York*. They were so thoroughly satisfactory that later I changed all the old closets for Flushometers. They are certainly the most perfect closet I have seen." Mr. Olcott, moreover, sends an additional order for his private residence and yacht.

THE BESLY SPECIALTIES.—Messrs. Charles H. Besly & Co., 10 and 12 North Canal street, Chicago, Ill., report that their general business has been very good. They are daily making large shipments of their celebrated helmet oil and bonanza cups, and note especial demands from California and vicinity. Their specialties, helmet bronze sheet and wire, Badger and Gardner die stocks, taps of all descriptions, and Gardner grinders, are largely called for by foreign buyers, recent shipments having been made to Japan, England, South America, Germany and Mexico. They are receiving numerous requests for prices, catalogues, etc., for new shop equipment, which they consider a good indication for future orders.

LITTLE GIANT PNEUMATIC TOOLS.—The business of the Standard Pneumatic Tool Co., Marquette Building, Chicago, Ill., which manufactures the well-known "Little Giant" pneumatic tools and appliances of all kinds, has increased to such an extent that it has been necessary to establish new agencies and increase its force of managers. Mr. A. B. Holmes, who has been connected with the company since its organization, has been promoted to be assistant manager, with headquarters in the Chicago office. The company has opened an office in Pittsburg, 217 Ferguson Building, which is in charge of Mr. William Jennings. The president of the company, Mr. Edward N. Hurley, sailed for Europe last month, for the purpose of establishing works in Germany and France for the European trade. The company has large works in Chippenham, near London, England, but on account of the enormous demand for its products on the Continent during the last year, and the steady increase of this demand, it has seemed advisable to establish additional works in the countries mentioned. Mr. Hurley will also be in attendance at the Paris Exposition, where there are two large exhibits of "Little Giant" pneumatic tools and appliances.

A Distinct Triumph

In competition with the best manufacturers of Europe and other American makes, the

CROSS OIL FILTER

has been selected for the equipment of the Imperial Steel Works, owned and operated by the Japanese government. This plant is probably the most perfect of its kind in Japan.

We guarantee these Filters to save 50 per cent. of oil bills, and back our guarantee with a trial at our expense. Catalogue 42.

The Burt Mfg. Co.,
Akron, Ohio, U.S.A.

Largest manufacturers of Oil Filters in the world.

OUR PERMANENT MAGNET DYNAMO
is a reliable source of current for producing
"SPARKS"
to ignite the charges in
GAS AND GASOLINE ENGINES.
Special styles for Launches and Automobiles
Send for descriptive pamphlet M. E.
THE HOLTZER-CABOT ELECTRIC CO.
Boston (Brookline), Mass.

WE BUILD ONLY HIGH GRADE **LAUNCHES, YACHTS, SHIPS, BOATS and DINGIES.** **C. B. MATHER & CO.**
Box 47,
ROWLEY, MASS.

RUBBER GOODS.—The Sayen & Austin Rubber Co., Thirteenth and Commerce Sts., Philadelphia, Pa., offers a large line of rubber goods for all uses, especially the Melville oxidized white sheet gum packing, which is a soft, tenacious compound, unaffected by oils, or acids, and which is especially designed for use on hot steam joints, for boiler gaskets, or for any other pipe connections or other similar uses.

AMERICAN TURRET LATHES.—The American Turret Lathe Co., Wilmington, Del., has recently received an order for a number of heavy semi-automatic turret lathes, to be electrically driven, for the new plant of the New York Shipbuilding Co., Camden, N. J. The electric driving gear will be of the same type as that which was designed for the Shipbuilding Company by Mr. C. M. Conradson, who was the mechanical engineer in installing this new shipbuilding plant, and who is now president of the American Turret Lathe Co.

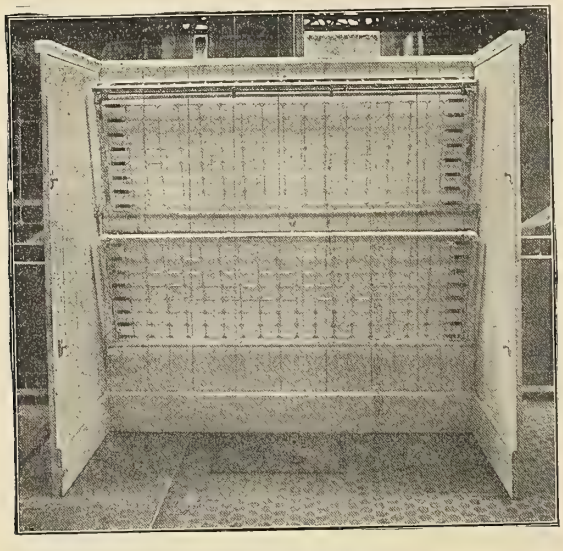
FALLS HOLLOW STAYBOLTS.—The Falls Hollow Staybolts, manufactured by the Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio, are specified to be used in the boilers which are to be installed in the yacht which the Harlan & Hollingsworth Co. have under contract for Mr. Fletcher of Providence. Large orders for these staybolts have also been given lately by the Morgan Iron Works, Moran Bros. Co., the Bath Iron Works, the Neafie & Levy Co., the Bigelow Co., and other ship and boiler building con erns.

AKRON ELECTRICAL APPARATUS.—The Akron Electrical Manufacturing Co., Akron, Ohio, is offering a direct connected electric plant which can be had for either slow or moderate speed, and for which the highest efficiency is claimed. This company gives a most liberal guarantee regarding its plant. In addition to its electrical apparatus, the company manufactures a commutator truing device, which is proving very popular. Any of our readers who have electric plants to care for should send for copies of the circulars describing this device.

PERFECTION BERTHS.

We manufacture a complete line of Patent Metallic Folding Berths and Iron Beds for cabin use.

They cannot get out of order—will last as long as the vessel. They fold up out of the way, and can be removed without the use of tools.



Upper berths can be folded up out of the way.
This berth is vermin proof. We furnish complete outfits including mattresses, pillows and bedding.

Send for Catalogue.

LEIN, IRVINE & CO.,

NEW YORK, 328-332 East 23d St,

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

ENGINEER SEEKS POSITION.

A position is wanted by a marine and mechanical engineer. Best of references. Address MECHANICAL ENGINEER, care MARINE ENGINEERING.

MANAGER OF EXPERIENCE SEEKS POSITION.

A man with many years of experience and with large acquaintance in the field of steam specialties seeks connection with a house in this trade. Address MANAGER, care MARINE ENGINEERING.

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HENRY L. EBSEN,

CONSULTING AND CONSTRUCTING ENGINEER.

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WILLIAM GARDNER.
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Manufacturer of **Screw Propellers** for Usual and for Special Work.
The Allen Dense Air Ice Machine for Steam Vessels.

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CARL C. THOMAS,

MECHANICAL ENGINEER, CONSULTING AND CONSTRUCTING MARINE WORK.

UNIVERSITY HEIGHTS, NEW YORK CITY.
Department of Marine Engineering and Naval Architecture, New York University.

EXHAUST WHEELS.—The Protective Ventilator Co., 129 Fulton street, New York, has furnished many of its exhaust wheels lately for ventilating boiler rooms or other places where it is desired to remove smoke, dust, or air. These wheels are made in sizes varying from 12 inches to 60 inches in diameter, and are designed to remove from 750 to 100,000 cubic feet of air per minute. These ventilators can be run by steam engines, electric motors, or as desired. Circulars and other information regarding them and the engines or motors which are furnished when specified can be had from the company.

BOILER FEED CHECK VALVE.—Among the new devices which have just been put on the market is Hough's improved patent boiler feed and relief check valve. This valve is designed to regulate the water which passes to the boilers at each stroke of the feed pump, so that the amount of water shall not vary, even though the ship may be rolling in a rough sea. The arrangement of the feed check and relief under this patent can be applied to any existing valve. The valve is already in use on a number of well-known steam vessels. Full information regarding it can be had from Edward S. Hough, 320 Sansome street, San Francisco, Cal. The London office of the manufacturer is in charge of Mr. E. R. Hough, Billiter Building, London, E. C.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION.

Established 1874.

NATIONAL OFFICERS.

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JAMES H. TAYLOR, 1513 Jefferson St., Baltimore, Md.

This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, ROBT. A. NOONE, 498 Swan St , Buffalo, N. Y.
" 2, JOHN B. HEYWARD, 191 Willard St., Cleveland, O.
" 3, JOHN MCCLURE, 54 High St , E. Detroit, Mich.
" 4, JAS. A. MACAULEY, 5902 Michigan Ave., Chicago, Ill.
" 5, HARRY P. WALKER, 418S. Patterson Park Ave., Baltimore, Md.
" 9, WM. BRIDGES, 784½ 12th St., Milwaukee, Wis.
" 13, SAM'L M. HALL, 2232 S. 5th St., Philadelphia, Pa.
" 15, of New Orleans, La., ALFRED BIRKS, 315 Atlantic Ave., Algiers, La.
" 27, N. P. SLATER, 1010 Garfield Ave., Bay City, Mich.
" 30, JOHN W. FARROW, 427 Pearl St., Pittsburg, Pa.
" 33, W. J. DU BOIS, Tompkinsville, S. I., New York.
" 35, WM. WARIN, 36 East St., San Francisco, Cal.
" 36, JOSEPH THOMAS, 57 Sea St., New Haven, Conn.
" 37, E. D. LOCK, 1304 S. 19th St., Toledo, O.
" 38, W. H. COLLIER, 73 Starr Boyd Building, Seattle, Wash.
" 39, FRANK W. BUCHNER, 124 Chestnut St., Erie, Pa.
" 40, H. N. POWELL, 1626 Ave. N½, Galveston, Tex.
" 41, J. W. COLLYER, Goble, Columbia Co., Ore.
" 43, GEORGE A. MILLER, 828 Wall St., Port Huron, Mich.
" 44, CHRIST DAHL, 534 W. 2d St., Manistee, Mich
" 46, D. W. FARRELL, Clayton, N. Y.
" 47, ARCHIE DE GRAW, 533 Division St., Sault Ste. Marie, Mich.
" 48, JOHN ERVING, 1510 Monroe St., Sandusky.
" 51, DONALD MCMILLAN, 105 Fourth St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich.
" 55, ARCHIE STALKER Electric Light & Power Plant, Cheboygan, Mich.
" 57, E. B. MEEKER, 71 Abeel St., Rondout, N. Y.
" 58, GEO. D. ANDERSON, Georgetown, S. C.
" 59, WALTER M MILLER, 221 Saratoga St., E. Boston, Mass.
" 62, NATHAN S. LAWRENCE, 30 Connecticut Ave., New London, Conn.
" 65, WM. MCCARREL, 8 Vernon St , Charleston, S. C.
" 67, WM. S. BRADLEY, Saugatuck, Mich.
" 70, CHAS. T. SMITH, 211 Bond St., Astoria, Ore.
" 72, THOMAS NAVAGH, 40 Lake St., Oswego, N. Y.
" 73, E. B. KELLOGG, 711 W. Walnut St., Green Bay, Wis.
" 76, ORSON VANDERHOET, Grand Haven, Mich.
" 77, JOS. WEBER, 820 Buffalo St., Manitowoc, Wis.
" 78, F. A. REHDER, 29 W Superior St., Duluth, Minn.
" 80, R. P. COOK, 46 Elm St., Albany, N. Y.
" 81, JAS. L. SWEENEY, 204 E. Saragossa St., Pensacola, Fla
" 82, FRED H. GOWELL, 4227 Middle St., Bath, Me.
" 84, N. K. LUDLOW, 15 S. Royal St., Mobile, Ala.
" 85, ARTHUR J. IRWIN, 427 Washington Ave., Alpena, Mich.
" 86, SHERMAN A. SMITH, 412 Terrace Ave., Marinette, Wis.
" 87, GEO. B. MILNE, 1003 Trumbull St., Detroit, Mich.
" 88, C. O. CHAPMAN, S. B. Canal, Sturgeon Bay, Wis.
" 89, GEO. A. TATE, 141 North Water St., Ogdensburg, N. Y.
" 91, MARTIN JOYCE, 8 Spruce St., Harbor Sta , Ashtabula, O.
" 92, JOSEPH D. BUDD, P. O. Box 50 Saginaw, E. S., Mich.
" 93, W. J. COOK, 2324 G. St., N. W., Washington, D. C.
" 94, GEO. R. JONES, Box 222, Washington, N. C.
" 101, J. C. BILLUPS, Ave. A, Atlantic City, Norfolk, Va.
" 102, CHAS. LA BOUNTY, Box 563. So. Haven, Mich.
" 103, C. H. HALL, Box 512, New Berne, N. C.
" 104, J. H. BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

"**Useful Information for Practical People,**" is the title to a pocket size book issued by Foree Bain, Monadnock block, Chicago, Ill. It contains a great deal of valuable information on subjects connected with electricity, mechanics, engineering, and inventions. As Mr. Bain is an expert consulting engineer on subjects pertaining to electricity, mechanics, and patents, most of the matter naturally pertains to subjects which have come under his supervision. There is probably not a reader of MARINE ENGINEERING who would not value this book, and we believe that it is sent free upon application.

The Bickel steam trap, one of the latest specialties on the market, is concisely described in a 6-page folder just issued by Charles Bond, general sales agent, 520 Arch street, Philadelphia, Pa. The folder contains an external, also a sectional, view of the trap. The working of the several parts is very fully explained, and a number of suggestions are given regarding the subject of traps. It is claimed for this trap that it is the most compact one on the market, and that it will always work, regardless of the pressure at either the outlet or the inlet, unless it is expected to discharge against a pressure greater than the head pressure—a hardly probable condition.

A very handsome and complete catalogue is now ready for distribution by the Morse Twist Drill & Machine Company, New Bedford, Mass., describing this company's many products. The catalogue is 6 by 9 in. in size, and comprises 120 very handsomely printed and illustrated pages. Among the many specialties which are particularly emphasized in the book are increase and constant angle twist drills, chucks, reamers, milling cutters, taps and dies, and machinists' tools. Much value is added to the catalogue by a very complete index covering nearly seven pages. Any of our readers who have use in any way for any of the tools mentioned will find this catalogue a valuable one for reference.

Two bulletins have just been issued by the Sprague Electric Company, 527 West Thirty-fourth street, New York. Bulletin No. 200 is devoted to Lundell motor equipments for printing establishments and book binderies. Although not specifically marine, the subject is one which will interest every user of electrically operated machinery, as the bulletin comprises 32 large pages, which are very fully illustrated, showing the manner in which machinery of all kinds in printing offices is run by electricity. The text is very complete, and altogether the bulletin is one of more than ordinary interest. The other bulletin is No. 401, and is devoted to the subject of Greenfield flexible steel armored conductors. This comprises four pages, which contain a number of illustrations of this conductor and flexible cord, together with applications of it. This bulletin will be of special interest to electricians connected with marine work of any kind.

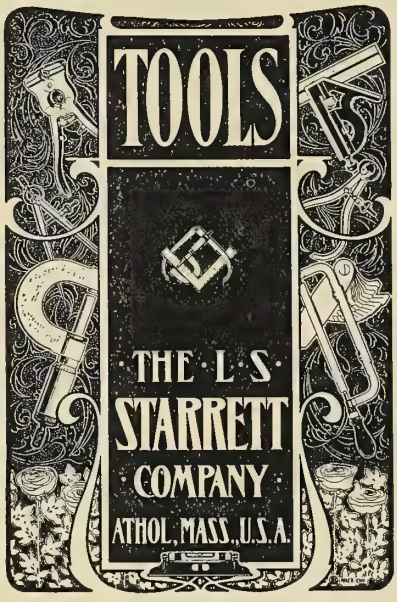
Perfection berths, as manufactured by Lein, Irvine & Company, 328 East Twenty-third street, New York, are shown in much detail in a catalogue just issued. This firm has made a specialty of fitting vessels of all kinds, from large ocean liners and army transports to coastwise vessels, freight steamers, and other vessels, with comfortable and compact berths of all classes. Each type of berth fitting is illustrated and concisely described in this catalogue, and different views are given emphasizing the special features for each berth. The illustrations include permanent berths and portable ones, berths which can be folded and berths which are stationary. There is also a very compact arrangement of berths, both stationary and folding, which has been very generally made use of on the government transports. The subject is so fully covered by this catalogue that any of our readers interested in such specialties should send for a copy.

The patented ventilators manufactured by the National Pancoast Ventilator Company, Drexel building, Philadelphia, Pa., are very well illustrated and described in a 32-page catalogue, with cover, now ready for distribution. These ventilators have been on the market for many years, and are used on some of the best known buildings throughout the country. There are also skylight ventilators, which will be of particular interest for use on steam vessels. The principle of the ventilators is very well explained in several of the illustrations.

A special catalogue is sent free to all inquirers by the Chicago Pneumatic Tool Company, Monadnock Block, Chicago, which has just been issued. Although intended principally for two recent conventions of railroad men, it is of interest to any user of pneumatic tools, as most of the 32 pages are devoted to different kinds of these tools. The illustrations are nearly full-page size, and are of most excellent quality. They illustrate riveting hammers, caulking hammers, drills of all kinds, flue cutters, stay bolt cutters, jacks, pneumatic painting machines, riveters, cranes, etc. A number of illustrations also show the manner in which the tools are used. Copies of the catalogue can be had upon application.

Some facts about asbestos covering are concisely stated in a 4-page, three colored folder which has just been issued by the H. W. Johns Manufacturing Company. It refers especially to the asbestos fire felt sectional covering which has been one of this company's leading specialties for a number of years. As stated in the folder, this covering is made in cylindrical sections three feet long, to fit pipe of standard measurement. It is also made in sheets and in roll form. Emphasis is laid upon the fact that this is not a hard molded, brittle covering, nor is it affected by moisture or heat nor destroyed by vibration or rough usage. Copies of the folder and samples of the covering can be had upon application to the H. W. Johns Manufacturing Company, 100 William street, New York.

The blowers manufactured by the New York Blower Company, 39 Cortlandt street, New York, have a number of circulars devoted to them which have just been issued. The circulars are sent out in a large envelope, illuminated in a very patriotic manner with pictures of the American flag. The folders themselves each contain an illustration of a different type of blower, and one of them has a very interesting set of pictures noting the changes which have been made in the American flag, beginning with 1775 and ending with the adding of the forty-fifth star in 1896. One of the folders gives a startling picture of what are claimed to be two of the largest mechanical draft fans ever built. Any of our readers who are interested in the subject can secure copies of these pictures, suitable for framing, by applying to the manufacturers.



SEND FOR
NEW CATALOGUE
No. 16 L
112 PAGES—ILLUSTRATED
FREE

Users of launches will be much interested in the catalogue entitled "Electric Launches," issued by the Electric Launch Company, 100 Broadway, New York. It is very handsomely published, on fine quality of paper, and comprises 88 pages. A table of contents adds much to the completeness of the catalogue. The first 20 pages are devoted to pictures and descriptions of launches of different sizes and types; then follow a number of pages devoted to the electrical equipment of the boats, including the steering gear, motor, storage batteries, etc. Several pages are devoted to price lists, and scattered all through the book are pictures of launches of all kinds which have been made. There is also much information regarding the subject of speed, capacity, etc. The subject of charging the batteries is an important point, which is fully discussed in several pages in the back part of the catalogue, and the yacht and lighting electric plants which this company furnishes are also shown.

SAFETY SYSTEM OF ELECTRIC WATERTIGHT DOORS

SIMPLICITY. STRENGTH. RELIABILITY. DURABILITY.

The Safety system meets perfectly every requirement for a bulkhead door that has been outlined by authorities on this subject, or found desirable from experience. The controlling mechanism includes:

CONTROLLER. AUTOMATIC LIMIT SWITCH. HAND SWITCH. EMERGENCY SWITCH.

The great flexibility of this system of control renders it capable of adaptation to a great variety of devices. Special attention given to inquiries. Prices and plans for either standard or special apparatus will be furnished upon application. Send for Bulletin No. 50015

SPRAGUE ELECTRIC COMPANY.

CHICAGO: Fisher Building.
BOSTON: 275 Devonshire Street.

General Offices: 527-531 West 34th Street, New York

Something
YOU SHOULD READ

GRAPHITE for VALVES and CYLINDERS

Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?
NO CHARGE

Joseph Dixon Crucible Co.
JERSEY CITY, N. J.

The Faultless metallic packing, manufactured by the Hoyt Metal Company, St. Louis, Mo., is illustrated and described in a 16-page pocket size booklet now ready for distribution. The booklet is bound in a dark green paper cover printed in gold. The text pages contain a number of illustrations of the packing, a table of prices, and some half dozen testimonials from leading concerns which have used the packing.

The Keystone motors, used for both launches and automobiles, have a special catalogue devoted to them, issued by the Keystone Motor Company, Drexel building, Philadelphia, Pa. It is an exceptionally neat catalogue, bound in a rich red cover, printed in black. The text comprises 16 pages, printed in two colors, giving numerous illustrations of various types of "autocycles," as the vehicles are called, and also giving considerable information regarding the engines. Undoubtedly any of our readers interested in the subject of gasoline launch engines or automobiles can have a copy upon application.

A course in gas engineering is offered by the A. Van der Naillen School of Engineering, 933 Market street, San Francisco, Cal. Any of our readers interested in the subject should send for a prospectus of the course, which is now ready for distribution.

Some of the steam specialties manufactured by the Sherwood Manufacturing Company, Buffalo, N. Y., are illustrated in a 4-page folder now ready for distribution. Each specialty is illustrated and concisely described. They include injectors, lubricators of eight different kinds and types, boiler flue cleaners, etc.

Fittings for steam vehicles, which are manufac-factured by the Ashton Valve Company, 271 Franklin street, Boston, Mass., have an 8-page booklet with cover devoted to them. Among the fittings illustrated and described are Ashton pop safety valves, Ashton cylinder relief valves, Ashton pressure gauges, water gauges, etc.

Waiting for a match is the concise statement on a card issued by Patterson, Gottfried & Hunter, Ltd., 146 Center street, New York. As the card has some features connected with it making it very useful to hang up in an engine room or office, the suspense of waiting for the match should be broken by all of our readers by sending for the card.

Ransome's concrete mixers have a 20-page catalogue devoted to them. The mixers are illustrated and fully described, and a number of testimonials are given by concerns which have used the mixers to advantage. Copies of the catalogue and more detailed information can be had from the Ransome & Smith Company, 17 Ninth street, Brooklyn.

The Russ motor is one of the recent gas engines seeking favors in the yachting field. A catalogue comprising 12 pages descriptive of the motor and giving an illustration of it, is now ready for distribution. The special features claimed for the motor are emphasized in this catalogue, copies of which can be had from the Russ Motor Company, 65 Delavan street, Brooklyn, N. Y.

Monitor Packing.—A packing designed for high pressure and high speeds, called the Monitor packing, is one of the specialties sold by Joseph Allen, No. 1 South Front street, Philadelphia. This packing can be ordered in sets or by the pound to rod and box measurements. Two high pressure rings come with each set, unless otherwise ordered. Information and samples can be had upon inquiry.

Some words of wisdom about paint for the man that pays the bill and the man that owns the roof are seeking opportunity to disseminate themselves. They are concisely printed in an 8-page pocket size booklet with cover, and they give considerable information regarding the different kinds of graphite paint manufactured by the Joseph Dixon Crucible Company, Jersey City, N. J. Any of our readers who are interested in the subject of paint, whether seeking wisdom or not, will find this booklet very readable.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

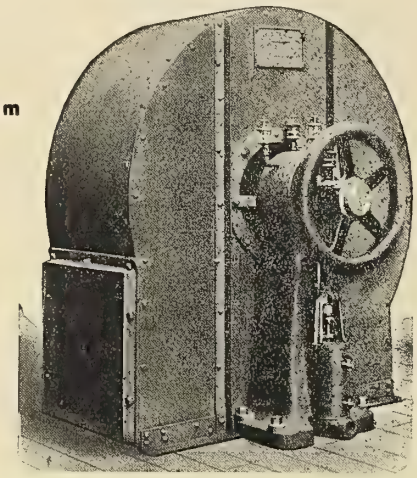
Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

N. Y. Office: Park Row Building.

BUFFALO FORCED DRAFT FANS

Steam Electric



Buffalo Steel Plate Steam Fan For Forced Draft and Ship Ventilation.

BUFFALO FORGE COMPANY,

BUFFALO, N. Y. NEW YORK OFFICE: 39 Cortlandt Street.

BUSINESS NOTES.

Big Dredging Contract.—The Atlantic, Gulf & Pacific Company, Park Row Building, New York, has been awarded the contract for a large amount of dredging in the Potomac River, opposite the city of Washington.

Powerful Binoculars.—A traveler who sailed for Liverpool in July, and who took with him a pair of 12-power binoculars, manufactured by the Bausch & Lomb Optical Company, Rochester, N. Y., writes: "The binoculars are magnificent, but are so powerful that it requires practice to use them. Just before reaching port a British cruiser passed us, and I could read the signals on her with the glasses, while the officer on the bridge was unable to even see the signals with his marine glasses, and reported that the vessel did not signal us." Users of marine glasses will appreciate what a distinction this demonstrates there is between modern binoculars and the old fashioned marine glasses.

Pneumatic Hammers.—Thomas H. Dallett & Co., York St. and Sedgley Ave., Philadelphia, Pa., are putting on the market a line of pneumatic chipping and riveting tools. These tools are designed to do the heaviest duty without jar or shock to the operator. The hammer is of the "valve long stroke" type, the valve being substantial and not liable to break. All the working parts of these tools are made of steel which has been carefully hardened, and which is accurately ground to gauge. The admission valve in the handle is so designed that the operator has instant and sensitive control of the strength of the blow to be struck, so even with the largest sizes of tools, an instant change can be made from the full power of the hammer to the lightest cutting. Further details, with pictures of the tools, are sent to all who are interested in them.

GOOD PAINT

Is durable, impervious, unchanging in color, firmly adherent. Combination paints based on zinc white have all these qualities.

OTHER PAINTS

Require explanations and apologies. The addition of **Zinc White** obviates the necessity for either.

SENT FREE:
Our Practical Pamphlets,
"Paints in Architecture,"
"The Paint Question."

The New Jersey Zinc Co.
71 Broadway
NEW YORK

Universal Grinding Machines.—Manufacturers of engines, pumps, and other such apparatus who have not studied carefully into the subject of grinding for finishing and other special work, will find it a subject of deep interest, and will appreciate the value of the catalogue, giving much information, issued by the Landis Tool Company, Waynesboro, Pa. This company manufactures a full line of grinding machines, designed especially for such work as would be called for in engineering establishments. The catalogue illustrates and describes these machines, and is especially valuable on account of the thoroughness with which the subject is covered.

Metal Working Tools.—Mr. W. E. Shipley, whose offices are in the machinery department of The Bourse, Philadelphia, Pa., now has the agency of some of the leading concerns in the country which are supplying machine tools of all kinds to ship yards and engineering establishments. Among these concerns, with their specialties, are the following: The Lodge & Shipley Machine Tool Company, lathes; the Cincinnati Milling Machine Company, milling machines; the Bickford Drill & Tool Company, radial drills; the Cincinnati Planer Company; the Cincinnati Machine Tool Company, upright drills; the Reeves Pulley Company, variable speed countershaft; the Ferracute Machine Company, punches and dies; J. E. Snyder, upright drills; the Whitcomb Manufacturing Company, planers; the National Machinery Company, bolt cutters, etc.; Walker magnetic chucks; the Windsor Machine Company, screw machines and monitor lathes; crank, geared, link, and friction shapers; Becker-Brainard Milling Machine Company, vertical milling machines; James Clark, Jr., & Company, "Willey" electrically driven tools; the Union Tire Company, tapping attachments and drill presses; the W. P. Davis Machine Company, lathes, keyseaters, and cutting-off machines; L. S. Heald & Son, American twist drill grinder; chucks and attachments.

RESULTS FROM ADVERTISING.—Mr. Ray D. Lillibridge, 20 Broad street, New York, who makes a specialty of systematizing business, has recently issued a circular which gives many excellent points regarding the subject of advertising, especially showing the lack of attention from which this important part of every business sometimes suffers. The subject is illustrated by referring to letters sent to eighty representative concerns, inquiring for prospective business. Only three replies were received which showed a reasonably carefully systematized effort to follow up their advertising and get this new business. The circular illustrates the importance of giving careful attention to inquiries, and will be good reading to those who are seeking more systematic methods of handling their business.

THE PARAGON BOILER.—The boiler recently put on the market and which was designed by Captain M. De Puy, 19 South street, New York, has come into such general demand that an order has just been received for two of these boilers of 100 horse power each, from Victoria, Australia. These boilers have been proving themselves desirable for use on river boats, and among the most recent inquiries for this purpose is B. R. Haskell, Memphis, Tenn. The inventor emphasizes several claims in connection with the Paragon boiler, especially the one that it develops a horse power to every six square feet of heat surface.

INCREASED RATE OF COMBUSTION.—Independently of the greater economy and higher rates of combustion, mechanical draft stands as the only means by which the increased rate can be economically obtained. Coincidentally the boiler capacity must of necessity be greater, provided the grate area is maintained. As observed by A. J. Durston, "as long as draft was dependent upon a funnel for its production, a much greater combustion than 25 pounds of coal per square foot of grate was rarely achieved; with artificial draft, on the other hand, the rate of combustion may be accelerated to any amount, and as a boiler's capability of transmitting heat without injury to itself is simply a matter of degree, experience has been necessary to determine the rates of combustion that can with safety be employed with different types of boilers." When it is considered that in boilers of the marine type the combustion rate resulting from the employment of mechanical draft is now carried as high as 40 to 50 pounds, that in torpedo boat and similar service a rate of 70 to 80 pounds is frequent, and in locomotive practice as high as 120 pounds is not at all unusual, the possibilities of increased rates of combustion with mechanical draft are evident.—Extract from Treatise on Mechanical Draft. By B. F. Sturtevant Co., Jamaica Plain, Mass.

HOT WEATHER ORDERS.

While a great many manufacturers are finding midsummer business quiet enough to take vacations, orders for

CROSS OIL FILTERS

Are coming from all over the world. We have just made important shipments to Copenhagen, Denmark; Stockholm, Sweden; Madrid, Spain; Paris, France; London, England; City of Mexico and smaller orders to other foreign ports. Our Domestic trade is also quite up to the mark. Our guarantee to save 50 per cent. of oil bills brings business regardless of seasons. Sent on approval and freight paid both ways if not satisfactory. Catalogue 42.

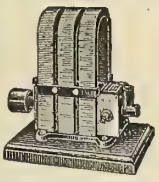
The Burt Mfg. Co., Akron, Ohio, U. S. A.

We also make the BURT EXHAUST HEAD. Largest manufacturers of Oil Filters in the world.

CROSS OIL FILTERS.—The Burt Manufacturing Company, Akron, Ohio, made some important shipments of Cross oil filters, particularly on export orders, during the past month. These orders came fom Denmark, Sweden, Spain, France, England, and Mexico. The Burt Company reports a steadily increasing demand for these filters in all directions, foreign and domestic.

BIG DRY DOCK.—The Tietjen & Lang Company, Hoboken, N. J., which has taken a lease of a thousand feet of shore front in Weehawken Cove, just north of Hoboken, has been for some time at work on the construction of an immense floating dry dock. With 40 ft. of water at low tide, and the new dock in working order, this company will be in shape to handle repair work to the best advantage.

MARINE BOILERS FOR LAUNCHES.—One of the best and most popular coal burning boilers for a small launch made is the submerged tube vertical marine, provided it is designed, built, and fitted out for the service as it should be, and yet there is probably no type of launch boiler whose possible value is less understood. There are two reasons for this. First, In the best design and construction they are expensive to build, and yet they present great opportunities for cheapening. Even the best of them, built and fitted out in the most thorough manner for marine duty and highest pressures, present about the same appearance to the ordinary observer as "a cheap vertical boiler," though there may be a difference of fifty per cent in cost between the two. Not attempting to enumerate all the differences, we may mention in addition to the higher grade material and workmanship put into the best of these boilers: the extra quality of tubes; the form of the "cone" top, allowing the right amount of steam storage space to prevent foaming and syphoning the water over into the engine; the number, size, and character of the stay bolts; suitable provision for cleaning interior of boiler; the ample diameter of fire-box as compared to the height of the boiler; form of the smoke hood and ash pan, as also the "trimmings." Second. Submerged tube marine boilers receive occasional unfair usage, for their splendid draft and heating surface tempts one "to see how quickly steam can be raised from cold water," and although these boilers when built and fitted out as they should be will stand considerable abuse, an unfair forcing of the fire before the water has had an opportunity of warming up the boiler will occasion leaky tubes or joints. Very few of the marine shops care to figure on building these small boilers, unless in connection with other machinery, where the engines and auxiliaries form a part of the bid, for they cannot afford to cheapen the work and thereby risk their reputation, neither do they wish to appear as overcharging, when as a matter of fact the margin of profit on all of this higher grade work is less than it should be. While it is true that the saving in the first cost to the purchaser can only be effected once, that too often has a greater influence on his judgment than the more serious considerations of safety and durability, though it is a well demonstrated fact that these boilers, built in the thorough and careful manner herein referred to, will under good treatment give five times the service of the common cheap type. Some interesting literature on the subject of boilers of this type is issued for free circulation by the Marine Iron Works, Station A, Chicago, Ill.



OUR PERMANENT MAGNET DYNAMO
is a reliable source of current for producing
"SPARKS"
to ignite the charges in
GAS AND GASOLINE ENGINES.
Special styles for Launches and Automobiles
Send for descriptive pamphlet M. E.
THE HOLTZER-CABOT ELECTRIC CO.
Boston (Brookline), Mass.

WE BUILD ONLY HIGH GRADE **LAUNCHES, YACHTS, SHIPS, BOATS and DINGIES.** **C. B. MATHER & CO.** Box 47, ROWLEY, MASS.

LARGE DREDGING CONTRACT.—The contractor who some time ago took the contract to do dredging in the harbor of Portland, Me., having failed to fulfill his agreement, the government has canceled the contract, and made arrangements with Morris & Cumings, 22 State street, New York, to finish the job.

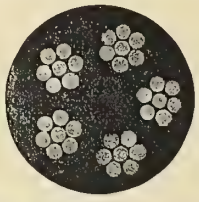
PORTABLE KEY-SEATING MACHINE.—A new device which will interest many of our readers is a portable key-seating machine which is being put on the market by the John Leisenring Mfg. Co., Belmont and Elm avenues, Philadelphia, Pa. These machines are made in all sizes, to be operated by hand, by electric motor, or by a flexible shaft or pulley. It is claimed for the machine that it will cut a key-way accurately and in perfect alignment at the rate of one inch per minute. More detailed information can be had from the manufacturers.

PAINE ENGINES.—James H. Paine & Sons, Clayton and Park streets, Boston, Mass., are meeting with much success with a line of compound engines which are called Class A. These engines have cylinders 10 and 20 in. with a 14 in. stroke. The bedplate is 43 by 38 in. The height of the engine above the center of the shaft is 76 in. The crank shaft is forged of mild steel, with the cranks cut out of the solid. The connecting rods, eccentric rods, and front columns are forged of mild steel. The links are of the double bar type. The valves are piston valves. The cranks are counterbalanced, and a bar wheel is fitted. Automatic water relief valves are fitted to both cylinders, and there is a complete oil service. The engine is nicely finished, and the cylinders are neatly lagged. All bearings and surfaces are of large area, and all ports and passages are of ample size. The materials used are of the best quality, and the workmanship is of the highest grade. Thrust bearing is built on the engine shaft when desired. When desired, these engines are built triple expansion, in sizes up to 500 I.H.P.

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire. The Elasticity of Manila.

ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

FLUSHOMETER PATENTS.—Owing to the success which has attended the flushometer system in connection with marine and other water closets, the Kenney Company, 72 and 74 Trinity place, New York, which owns the patents, announces that it will begin suit immediately against a number of imitations of this system.

POTTER SEPARATORS.—The Potter Separator Company, 39 Cortlandt street, New York, has received an order from Messrs. Harland & Wolff, Ltd., Belfast, Ieland, for a complete outfit of Potter steam separators for the American liner *Philadelphia*, formerly the *Paris*. The general agency for this separator for the United States has been taken by Messrs. James Beggs & Company, 9 Dey street, New York.

FINE MECHANICAL TOOLS.—Early in August the L. S. Starrett Company, Athol, Mass., shut down for the usual two weeks' vacation in order to make necessary alterations and repairs. This shut-down was begrudgingly given, because business was so brisk that the company was already finding it difficult to keep up with its orders. Such improvements were made in the facilities of the shops, however, that it is believed that the loss of time will soon be made up for, especially as the men have been rushed with work for many months without a break. During the shutdown the company added quite a number of screw machines and other machinery.

ASBESTOS STEAM PACKING.—The H. W. Johns Manufacturing Company, 100 William street, New York, reports a steadily increasing demand for the H. W. Johns asbestos steam packing. This packing is made flat, round, or square, and is made with especial reference for use in high pressures. The claim is made that less oil is required with this packing than with most other packings, as the material itself is to a large extent self-lubricating. Another important claim is that oils made from petroleum work as well with this packing as lard or sperm oil. Because of its being made of asbestos, this packing is not affected by acids, and will stand long exposure to dampness or any degree of heat. Samples of this packing and descriptive price list are sent free to all inquirers.

DRAFTSMEN'S SUPPLIES.—Draftsmen who have occasion to buy supplies of any kind will find a valuable book of reference known as Sample Book M, issued by the Elliott Electric Blue Print Company, 723 Liberty avenue, Pittsburg, Pa. This book gives much information regarding blue print paper, detail paper, tracing linens, drawing inks, and other draftsmen's supplies of which this company makes a specialty. A new specialty which this company is offering and which is very popular in drafting rooms, is "Write White." It is used especially for making changes or alterations on blue prints. This fluid does not spread and will not corrode the pen, and has many other special features which are told about by the manufacturers.

WESTON STANDARD PORTABLE DIRECT-READING

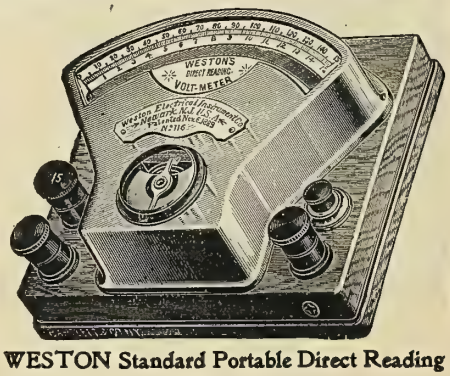
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

EUREKA PACKING.—James L. Robertson & Sons, 218 Fulton street, New York, report that marine engineers are asking more and more for Eureka packing. This packing is easily placed in position with the fingers, and is sold ready for use. The "red diamond" always identifies this packing.

THE BESLY SPECIALTIES.—Charles H. Besly & Company, 10 North Canal street, Chicago, Ill., report that in spite of its being midsummer, and a Presidential campaign year, business is as brisk as they could ask. The lubrication of machinery is calling for a large amount of Helmet oil throughout all parts of the United States. This firm has also received orders for two complete shop equipments, to go to India, including lathes, chucks, drills, screw plates, etc. Gardner grinders are also in demand. In general machinist supplies, this firm reports as great a demand as at any time during many months past. An excellent idea of the full line of specialties carried by this firm can be had from the catalogue which is sent free to any one writing for a copy.

CUSHIONS, NAPERY, ETC.—Owing to the steady increase in his business, Mr. M. W. Fogg moved some time ago to quarters over three times the size of those formerly occupied, and is now located at No. 20 Fulton street, corner of Front, New York. In spite of the greatly increased capacity of his establishment, Mr. Fogg has found that the new place is none too large, as the business in the new location has called into use all of his facilities. He makes a specialty of everything required in the furnishing of yachts and vessels, such as cushions, mattresses, draperies, table linen, bedding, etc. The business includes the entire furnishing of single yachts or of entire fleets, not only in furnishing new, but in maintaining the supply up to any required standard.

FOG SIGNALS.—The rules and regulations of the U. S. Steam Vessel Inspection Service are very strict regarding the use of fog signals, not only on large steam vessels, but on sailing vessels, yachts, launches, etc. On vessels where there is no steam for blowing a whistle the law requires some other device. One of the most complete lines of fog signals operated by air is that manufactured by the Gleason Peters Air Pump Company, Mercer and Houston streets, New York. The cuts in the advertisement show two types of outfits. The smallest one is a portable pump, held to the deck by one foot and operated by hand, like an ordinary bicycle pump. Attached to the side of the air chamber is the whistle. Each stroke of the piston in this pump gives a long blast. The price of this signal is such as to bring it within the reach of anybody. A larger outfit, employing the storage of air in a cylinder, is also illustrated. This is especially designed for use on schooners and yachts of all kinds. Air is stored in a tank placed in any convenient position, the compressing of the air being automatically done by a small pump operated either by hand or mechanically. Attached to this tank is a whistle and also a gauge showing the air pressure. These outfits are made for schooners of large size if desired, and the whistle can be of such size as to give a signal sufficiently loud for any conditions. It may not be generally known that the law on the Atlantic and Pacific coasts requires that a sailing vessel under way shall sound, at intervals of not more than one minute, one blast of a foghorn when on the starboard tack; two blasts in succession when on the port tack; and three blasts in succession when with the wind abaft the beam. Launches and motor boats and other craft, even to rowboats, are required to sound a blast of a foghorn or equivalent signal at intervals of not more than one minute. Similar rules apply on the Great Lakes and also on other waterways of the country. With such stringent laws requiring the use of fog signals, many of our readers will be interested in the complete line offered by the Gleason Peters Company.

THERE IS BUT ONE

EUREKA
Packing

And that bears this trade-mark.

PATD EUREKA TRADE MARK

which is a Guarantee of Perfection.

There are IMITATIONS, but only one DIAMOND, and that's "Eureka." It's the cheapest good packing made; a friend to the ENGINEER, a profit to the user.

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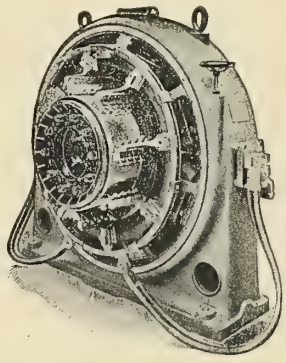

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Generators and Motors

Operating in the Best Equipped Docks and Ship Building Yards.

The Standard of the World.

Westinghouse Electric & Manufacturing Co.

PITTSBURG, PA.

All principal cities in U. S. and Canada

61 C

A Good Record.—Kelley, Spear & Company, Bath, Me., who began business in 1888, recently launched their 98th vessel, and within a few weeks will have two more going overboard, making 100 vessels within this short period. These include 48 barges, 1 bark, 2 steam barks, 4 two masted schooners, 20 three-masted schooners, 10 four-masted schooners, 2 barkentines, 6 scows, 1 stern wheel steamer, 1 raft boat, 2 tow boats, and 1 dredge.

Bordo Plug Valve.—John Meneely, 309 Arch street, Philadelphia, recently offered to the trade the Bordo plug valve, and he reports a very extensive demand for it. The special features claimed for this valve are that it is balanced, that it opens with a quarter turn, that it never raises from its seat, is always perfectly tight, will not stick, has full pipe area in the box, and is easily adjusted to take up wear. The valves are made in sizes from 1-4 in. to 4 in.

Mechanical Thermometers.—Users of mechanical thermometers for any purpose will be interested in a line of small circulars issued by the Helios-Upton Company, Peabody, Mass., which illustrate and describe the full line of such goods of which this company makes a specialty. Many of the vessels in the United States Navy and numerous coastwise and ocean going vessels have been entirely equipped with thermometers, barometers, and other specialties of this company.

Magnolia Metal.—The Q. & C. Company, Western Union Building, Chicago, and 106 Liberty street, New York, announces an excellent demand for the well known Magnolia metal which this company now sells. This metal has been well known in engineering fields for many years, and has been extensively used by steamship lines, navies, and for other uses calling for such metal in all parts of the world. The results are reported as having been highly satisfactory on high speed engines and for bearings where other metals have not proved satisfactory.

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Dimension Sheets, Bolts and Bars, Sheathing, Slating and Boat Nails, Yellow (Muntz) Metal Condenser and Supporting Plates, Piston or Pump Rods.

Pure LAKE COPPER Sheets, Bolts and Nails.

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The Allen Dense Air Ice Machine for Steam Vessels.

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CARL C. THOMAS,

Mechanical Engineer, Consulting and Constructing Marine Work.

University Heights, New York City.

Department of Marine Engineering and Naval Architecture, New York University.

Asbestos Goods.—The C. W. Trainer Manufacturing Company, Boston, Mass., has recently covered the boilers on the ocean-going towboats *Tormentor* and *Buccaneer*, owned by Haley & Appleton, of Boston, with featherweight plastic covering. This covering has already been extensively used on other vessels, one of the recent orders being for the boilers on the ferryboat which has just been built for the city of Boston. In addition to this covering for boilers and steam pipes, the Trainer Company makes a very full line of asbestos materials, including packing, fireproof cloth, rope, etc.

Weatherproof White Enamel.—Harrison Brothers & Company, Inc., Philadelphia, Pa., are now offering a new white enamel, designed especially for exterior work, and which is sold under the name of "Weatherproof" white enamel. It is especially intended for outside work, such as on deck houses, hulls, and other parts of ships and yachts, and is believed to be equally as good for iron or other metal as for wood surfaces. The claim is made for this enamel that it will not check, crack, or flake under the most severe exposure to the elements, and that salt atmosphere has no effect whatever upon it. Another important claim is that soot and smoke do not adhere to it, and can be readily removed by washing.

MARINE ENGINEERS' BENEFICIAL ASSOCIATION.

Established 1874.

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This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

ADDRESSES OF CORRESPONDING SECRETARIES.

No. 1, ROBT. A. NOONE, 498 Swan St , Buffalo, N. Y.
" 2, JOHN B. HEYWARD, 191 Willard St., Cleveland, O.
" 3, JOHN McCLURE, 54 High St , E. Detroit, Mich.
" 4, JAS. A. MACAULEY, 5902 Michigan Ave., Chicago, Ill.
" 5, HARRY P. WALKER, 418S. Patterson Park Ave., Baltimore, Md.
" 9, WM. BRIDGES, 784½ 12th St., Milwaukee, Wis.
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" 27, N. P. SLATER, 1010 Garfield Ave., Bay City, Mich.
" 30, JOHN W. FARROW, 427 Pearl St., Pittsburg, Pa.
" 33, W. J. DU BOIS Tompkinsville, S. I., New York.
" 35, WM. WARIN, 36 East St., San Francisco, Cal.
" 36, JOSEPH THOMAS, 57 Sea St., New Haven, Conn.
" 37, E. D. LOCK, 1304 S. 19th St., Toledo, O.
" 38, W. H. COLLIER, 73 Starr Boyd Building, Seattle, Wash.
" 39, FRANK W. BUCHNER, 124 Chestnut St., Erie, Pa.
" 40, H. N. POWELL, 1626 Ave. N½, Galveston, Tex.
" 41, J. W. COLLYER, Goble, Columbia Co., Ore.
" 43, GEORGE A. MILLER, 828 Wall St., Port Huron, Mich.
" 44, CHRIST DAHL, 534 W. 2d St., Manistee, Mich.
" 46, D. W. FARRELL, Clayton, N. Y.
" 47, ARCHIE DE GRAW, 533 Division St., Sault Ste. Marie, Mich.
" 48, JOHN ERVING, 1510 Monroe St., Sandusky.
" 51, DONALD McMILLAN, 105 Fourth St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich.
" 55, ARCHIE STALKER Electric Light & Power Plant, Cheboygan, Mich.
" 57, E. B. MEEKER, 71 Abeel St., Rondout, N. Y.
" 58, GEO. D. ANDERSON, Georgetown, S. C.
" 59, WALTER M. MILLER, 221 Saratoga St., E. Boston, Mass.
" 62, NATHAN S. LAWRENCE, 30 Connecticut Ave., New London, Conn.
" 65, WM. McCARREL, 8 Vernon St , Charleston, S. C.
" 67, WM. S. BRADLEY, Saugatuck, Mich.
" 70, CHAS. T. SMITH, 211 Bond St., Astoria, Ore.
" 72, THOMAS NAVAGH, 40 Lake St., Oswego, N. Y.
" 73, E. B. KELLOGG, 711 W. Walnut St., Green Bay, Wis.
" 76, ORSON VANDERHOET, Grand Haven, Mich.
" 77, JOS. WEBER, 820 Buffalo St., Manitowoc, Wis.
" 78, F. A. REHDER, 29 W. Superior St., Duluth, Minn.
" 80, R. P. COOK, 46 Elm St., Albany, N. Y.
" 81, JAS. L. SWEENEY, 204 E. Saragossa St., Pensacola, Fla.
" 82, FRED H. GOWELL, 4227 Middle St., Bath, Me.
" 84, N. K. LUDLOW, 15 S. Royal St., Mobile, Ala.
" 85, ARTHUR J. IRWIN, 427 Washington Ave., Alpena, Mich.
" 86, SHERMAN A. SMITH, 412 Terrace Ave., Marinette, Wis.
" 87, GEO. B. MILNE, 1003 Trumbull St., Detroit, Mich.
" 88, C. O. CHAPMAN, S. B. Canal, Sturgeon Bay, Wis.
" 89, GEO. A. TATE, 141 North Water St., Ogdensburg, N. Y.
" 91, MARTIN JOYCE, 8 Spruce St., Harbor Sta , Ashtabula, O.
" 92, JOSEPH D. BUDD, P. O. Box 50 Saginaw, E. S., Mich.
" 93, W. J. COOK, 2324 G. St., N. W., Washington, D. C.
" 94, GEO. R. JONES, Box 222, Washington, N. C.
" 101, J. C. BILLUPS, Ave. A, Atlantic City, Norfolk, Va.
" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H.. HALL, Box 512, New Berne, N. C.
" 104, J. H BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

Knife switches of the Colonial type which are sold by the Crouse-Hinds Electric Company, Syracuse, N. Y., are illustrated and briefly referred to in a 4-page folder which is now being distributed.

Users of gas engines will be interested in a pocket size catalogue issued by the Delaware Machine Works, Wilmington, Del., descriptive of the Hercules marine vapor engines. The type of this engine is shown by the illustrations, and tables giving information regarding sizes, etc. A strong guarantee is also published.

Packings and valves are told about in a neat pocket size booklet issued by the Mechanical Rubber Company, Cleveland, Ohio. Several grades of sheet packing are described with considerable detail, and much information is given regarding them. There is also quite a little attention given to piston packings of various kinds and for all pressures. There is also a combination packing illustrated and described. The balance of the catalogue is devoted to gaskets and valves. A table of sizes and a price list add much to the completeness of the catalogue.

Single style steam pumps, manufactured by Dean Bros. Steam Pump Works, Indianapolis, Ind., are described in special catalogue No. 42, just issued. This catalogue comprises 72 pages, and is devoted exclusviely to this style of pump, so that those of our readers in sending for a copy should specify the number. The catalogue is about 6 in. square, and there is an average of nearly a cut to a page, giving an idea of what a thorough catalogue it is, in addition to the many illustrations, there is sufficient text to concisely describe the several pumps, and there are many tables of capacities, sizes, etc. The catalogue is one which will be of much value for reference to any one who is interested in the subject of steam pumps.

The subject of electric heating is treated in a most interesting and thorough manner in a very complete catalogue just issued by the Simplex Electrical Company, Cambridgeport, Mass. This is the sixth catalogue issued by this company descriptive of miscellaneous electric heating apparatus. Four years ago a catalogue of 20 pages sufficed to describe the heaters then manufactured. The present one comprises nearly 60 pages and covers ten times as many items. There are many things illustrated and described in this catalogue which will interest our readers, especially electric griddles, broilers, toasters, hot water urns, flatirons, and cooking and heating utensils, which have already been extensively introduced on board many steam vessels and yachts. The index adds much to the completeness of the catalogue. The illustrations are very numerous and of excellent quality.

The Twentieth Century tool catalogue is now ready for distribution by Montgomery & Company, 105 Fulton street, New York. It is a concise, compact, and comprehensive as a catalogue could well be. It is about 4x6 in. in size and comprizes 532 pages. Some idea as to the comprehensiveness of the catalogue can be gained by the fact that the index covers nine pages. Almost every article that the manufacturer, mechanic, engineer, or machinist could look for is illustrated, and a complete line of sizes, with prices and other information, is given. Every user of tools should send for a copy for the value it would be as a work of reference and in making purchases. Draughtsmen would also find this catalogue invaluable for the same purpose. Scarcely a subject or article is referred to which does not have illustrations accompanying it. We have no doubt that copies will be sent upon application by mentioning MARINE ENGINEERING. A supplementary catalogue is also issued by Montgomery & Company, comprising 40 pages, and devoted exclusively to the subject of bolts and screws. The tables and illustrations make this catalogue of much value.

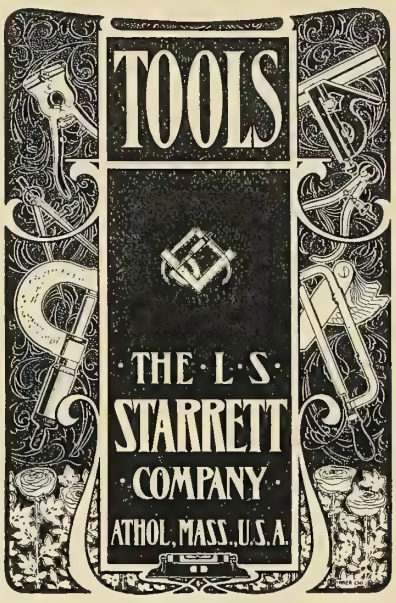
A nautical preparatory school has been established in Boston, and circulars regarding it are now being distributed by the Naut cal Preparatory School, P. O. Box 2416, Boston, Mass. The school is under the charge of Lieutenant C. H. Harlow, U. S. Navy.

The use of graphite in foundry work is discussed in a booklet which has just been issued by the Joseph Dixon Crucible Company, Jersey City, N. J., under the title of Facings. Any of our readers interested in the subject can secure a copy upon application.

The educational series known as the Hawkins set is described in a catalogue issued by the publishers, Theodore Audel & Company, 63 Fifth avenue, New York city. The catalogue describes with much completeness each one of the six volumes. The volumes comprise a catechism of electricity, aid to engineers' examinations, instructions for the boiler-room, calculations for engineers, catechism of the steam engine, and an indicator catechism. The catalogue states that arrangements are made by which these books can be purchased on the payment of only $1.00 per month.

A beautifully executed catalogue has just been issued by the Niles Tool Works Company, of Hamilton, Ohio. It is bound in morocco, with flexible cover, and comprises 169 pages. The paper is a fine quality of coated stock, and the printing is in two colors, red and black. The size of the book is 9 by 12 inches, and in nearly every instance a picture of large size occupies the right hand page. The text is in English, French, and German. The book was issued more particularly as a Paris Exposition number. The Niles Company received a highest award at the hands of the Exposition officials, the Grand Prix. We doubt very much if the catalogue is for general distribution, but probably the inquiries of proprietors and managers of engineering establishments in which machine tools are used will not be overlooked.

The Newton Machine Tool Works, Vine and 24th streets, Philadelphia, Pa., have issued a new catalogue, known as No. 34. It comprises 192 pages, is 6 by 9 inches in size, and is bound in stiff board cover. This company makes a large line of tools for machine shop equipments, such as would be used in shipyards and other engineering establishments. These tools include cylinder boring machines, drill presses, and other drilling machines of many kinds, cold saw cutting off machines, all kinds of milling and shaping machines, slotting machines, etc. The book is most profusely illustrated with unusually good wood cuts, and each machine is concisely described, giving such information as would naturally be sought. Although the catalogue is very elaborate and complete, undoubtedly copies can be had upon application by mentioning MARINE ENGINEERING.



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NEW CATALOGUE
No. 16 L
112 PAGES—ILLUSTRATED
FREE

The Simplex lathe center grinder is a most useful little device which is being offered to the machinery trade by Herman Dock, 905 North Carlisle street, Philadelphia, Pa., and which has a 4-page folder devoted to it. This folder is now ready for distribution. A large illustration shows the construction and manner of operating the grinder, and nearly two pages are devoted to a description of it.

The Pittsburg feed water heater and purifier of both open and closed types has a catalogue of 42 pages devoted to it, and to other specialties which are sold by James Bonar, Carnegie Building, Pittsburg, Pa. A number of illustrations are given of the heater, illustrating the various types and sizes, and many testimonials are published, also a list of users, and tables which will be of much interest to engineers. A number of pages in the back part of the catalogue describe other specialities, such as the Bonar oil filter and separator, gauge cocks, etc.

SAFETY SYSTEM OF ELECTRIC WATERTIGHT DOORS

SIMPLICITY. STRENGTH. RELIABILITY. DURABILITY.

The Safety system meets perfectly every requirement for a bulkhead door that has been outlined by authorities on this subject, or found desirable from experience. The controlling mechanism includes:

CONTROLLER. AUTOMATIC LIMIT SWITCH. HAND SWITCH. EMERGENCY SWITCH.

The great flexibility of this system of control renders it capable of adaptation to a great variety of devices. Special attention given to inquiries. Prices and plans for either standard or special apparatus will be furnished upon application. Send for Bulletin No. 50015

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YOU SHOULD READ

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Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?
NO CHARGE

Joseph Dixon Crucible Co.
JERSEY CITY, N. J.

A price list of planimeters and integrators has been issued by the Keuffel & Esser Company, 127 Fulton street, New York city. The descriptive matter is quite complete, and there are many illustrations of different styles and sizes of planimeters and other instruments. Almost every engineer is interested in the subject of indicator work, and would find this price list a most instructive one to peruse.

"Three Points of View" is the title of an exceedingly well printed and attractive catalogue issued by the American Turret Lathe Co., Wilmington, Del. It is printed in two colors, and contains two fine halftone engravings of this company's lathes, one 24 in. the other 40 in. Several pages are devoted to a description of the lathes, and of their special features. The lathes have been introduced by several of the largest shipbuilding and engineering companies of the country. They have a large number of speeds, a large range of feeds, and many other features which are emphasized in this catalogue. Any user of machine tools will be interested to send for a copy.

Users of grease cups will have an interesting little catalogue sent to them upon application by James L. Robertson & Sons, 218 Fulton street, New York city, descriptive of the Tic-a-toc automatic grease cup. Illustrations are given showing the cup complete and in various positions and conditions. There are also several testimonials from those who have used the cup, together with price lists and other information.

Wearers of overclothes will want to send for a sample sheet of goods issued by Hamilton, Carhart & Co., Detroit, Mich., descriptive of the union made clothing which this company sells. This card contains samples of eight different kinds of goods, which are designed for various garments, such as overclothes of all kinds, coats, shirts, etc. There is also sent with this card to those who wish it a measure a yard long, to use in filling orders by mail. The subject is one which all of our readers who are not satisfied with their overclothes should investigate.

Marine specialties of the Boston & Lockport Block Company, 142 Commercial street, Boston, Mass., are thoroughly illustrated and described in the 1900 catalogue, now ready for distribution. This catalogue is pocketsize, and comprises 112 pages. It is very complete and comprehensive, and should be in the hands of every purchaser, both afloat and on shore. The thoroughness with which it covers the field is shown by the fact that the index covers four pages and includes nearly everything that could be conceived of, and is especially complete in a line of blocks, hoists of all kinds, diaphragm pumps, warehouse and other trucks, mallets, etc. The catalogue is very profusely illustrated, and must be invaluable for purposes of reference and for purchasing supplies. Copies can be had upon referring to MARINE ENGINEERING.

Two exceptionally handsome and instructive catalogues are issued by the Westinghouse Electric & Mfg. Company. One of them is devoted to the subject of electric power. It comprises 136 pages, all of which are neatly printed. Each right hand page has an illustration of some application of electric power, so that the catalogue is really a statement in pictures of the application of electricity by means of Westinghouse motors for industrial purposes. The book was published for distribution at the Paris Exposition, and the brief descriptive matter accompanying each illustration is printed in English, French, German, and Spanish. The catalogue could not fail to be of much value to any one interested in the subject of electric power. The other catalogue is entitled "Drop in Alternating Current Lines." Like the other, it is a choice specimen of the bookmaker's art. The first part of this catalogue treats of a method of calculating the drop in alternating circuits, making it a most valuable one for those who have to do with this form of current. There is also a most satisfactory description of the Westinghouse type F compensator. Copies of either or both of these catalogues can be had upon application to the Publishing Department of the Westinghouse Electric & Mfg. Company, Pittsburg, Pa.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

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Buffalo Engines

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Marine Lighting Sets.

A record hitherto unreached has been established.

Marine Type Upright. Extended Base for Connection to Generator.

New Engine Brochure on Application.

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GOOD PAINT

Is durable, impervious, unchanging in color, firmly adherent. Combination paints based on zinc white have all these qualities.

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Require explanations and apologies. The addition of **Zinc White** obviates the necessity for either.

SENT FREE:
Our Practical Pamphlets,
"Paints in Architecture,"
"The Paint Question."

The New Jersey Zinc Co.
71 Broadway
NEW YORK

The use of Lundell electric motors where small power is desired is illustrated and described in bulletin No. 201, issued by the Sprague Electric Company, 527 West 34th street, New York city.

The Swain patent lubricator and other specialities for engineers have an 8-page folder devoted to them issued by the New York agent, W. B. Maull, 35 Dey street. The folder has a number of illustrations of the lubricator in addition to the text. Copies will undoubtedly be sent to all inquirers.

The war in China, which has been followed carefully by most readers, is made more understandable by referring to a pocket map of China. A copy one will undoubtedly be sent to all of our readers if they refer to this paragraph, and write to Patterson, Gottfried & Hunter, 146 Center street, New York city.

Two Circulars have been issued by the Consolidated Telferage Company, 20 Broad street, New York city, which refer to this company's system for handling freight of various kinds. This system is designed especially for handling coal, ore, and other cargoes, either when vessels are alongside the wharf or at anchor in the stream.

Yachtsmen and others interested in the subject of pleasure boats of all kinds will undoubtedly have sent to them upon application to A. G. Cuthbert, 92nd street and Calumet River. Chicago, Ill., a 32-page catalogue describing the yachts which this builder has designed and built. The many illustrations add much to the completeness of the catalogue.

"Protection that Protects" is the title of a very dainty booklet issued by the Pittsburg Gage and Supply Co., Pittsburg, Pa. The printing is most neatly done in two colors. The subject matter is the Pittsburg safety water column. The booklet is one that all of our readers would wish to have for its appearance as well as for the value it has in describing the water column and other specialties.

BUSINESS NOTES.

Asbestos Sheathing.—The H. W. Johns Manufacturing Company, 100 William street, New York, has ready for distribution a very interesting article on the subject of asbestos sheathing, as applied to vessels. It refers especially to the use of this sheathing in steel vessels, and in the living parts of the vessels. The subject is very completely handled, and is quite fully illustrated.

Valve Reseating Machines.—Every engineer will appreciate the value of an efficient valve reseating machine, and will be interested in the Standard machine, which is manufactured and sold by W. P. Barnum, Fredonia, N. Y. This machine has recently been made as complete and efficient as it is believed such a machine could be. It reseats all kinds of valves eight or ten times without disconnecting them from the pipes. The machine has great range, in that it will reseat valves from 1-4 in. to 12 in. The manufacturer has such confidence in it that he offers to send the machine on trial, and if it does not do what is claimed for it, it can be returned, and need not be paid for.

Copenhagen Porcelain.—As royal Copenhagen ware is used very extensively on the leading ocean liners, war vessels, and steam yachts, it is interesting to note that the company manufacturing this ware received at Paris the highest award which it is possible for any manufacturer outside of Sevres to receive—a grand prize. The Sevres ware was used as a standard, with twenty points, and the royal Copenhagen received nineteen. The next on the list received only seventeen points. A grand prize was also awarded to the art director, and gold medals to the chemist and the artist of the Copenhagen Company. This ware is sold by the leading dealers in this country. The American headquarters are at 96 Church street, New York, with Mr. Christian Scherfig as manager.

PNEUMATIC TOOLS.—Owing to the great increase in its business, the Standard Pneumatic Tool Company, head offices Marquette Building, Chicago, Ill., has opened a New England office at 185 Summer street, Boston, Mass., under the charge of Mr. F. A. Barbey.

SMOOTH-ON COMPOUND.—Although recently put on the market, the Smooth-on compound is increasing very rapidly in sales, and is now used very extensively on steam vessels, not only in salt water, but in inland waterways. These sales are believed to be due exclusively to the excellent qualities of this compound for repairing leaks and doing other work in finishing iron and steel parts. The Smooth-on Manufacturing Company, 547 Communipaw avenue, Jersey City, N. J., which manufactures the compound, is now distributing a catalogue which gives much information regarding this material.

UNIVERSAL HAND OIL PUMP.—One of the most popular oil pumps which has been on the market for many years is the "Universal," manufactured by the Lunkenheimer Company, Cincinnati, Ohio. This pump is easy to attach, fill, and operate, and it works well under high pressure. It can be attached either vertically or horizontally. The filling hole is closed by a hinged cap, which keeps out dust and dirt. In addition, there is a removable wire gauze strainer to insure clean oil. The plunger is carefully made and very durable. In fact, all of the parts are of ample size, so that the pump shall not easily get out of order.

EDUCATION BY CORRESPONDENCE.—Many a young man with ambition but with lack of facilities for securing a higher education in the ordinary way has fitted himself by means of a correspondence school to hold far better positions than he could possibly expect to hold without technical education. Education by correspondence can be secured readily at small cost, the studying being done evenings and odd hours. In order to still further encourage worthy young men to equip themselves in marine and other lines of engineering, the trustees of the American School of Correspondence, 156 Tremont street, Boston, Mass., have voted to award to ambitious and deserving young man in each of the engineering establishments in the country, a free scholarship. Every reader of MARINE ENGINEERING. who is at all ambitious to earn more money and to hold a better position, should investigate this offer. Our subscribers on the Great Lakes will be interested to learn that this school has opened an office, room 229, in the Arcade, Cleveland, Ohio.

A COMPANY WITH A HISTORY.—Few companies in the country can have more historic associations than has the Taunton-New Bedford Copper Company, New Bedford, Mass. This company is a combination of the Revere Copper Company, the Taunton Copper Manufacturing Company, and the New Bedford Copper Company. The Revere Company succeeded to the business of Paul Revere in the early part of the present century, who won fame early in life by the historic ride at the opening of the Revolutionary War. Revere established his plant for rolling copper in Canton, Mass., about one hundred and ten years ago. The Taunton Company dates back to 1823 when Crocker Bros. began rolling sheet copper and yellow metal. The New Bedford Company was incorporated in 1860, and has funished a large amount of sheathing, bolts, rivets, etc., for the whaling vessels which made the city so famous, and was established at the time when only the very best materials were used, as whaling ships have always been famous for being as staunch as they could be built. It will be seen that the consolidated company has over a century of experience back of it. The business management, however, is as up-to-date as possible. The company makes the strongest of claims for its products, and believes that its yellow (Muntz) metal specialties are the finest in the land. The company makes a specialty of sheathing, condenser plates, bolts, bars, pump rods, and almost everything else that could be asked for in copper or yellow metal.

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61 D

Safety Valves and Gauges.—The trade in steam specialties will not be surprised to hear that the Ashton Valve Company, 271 Franklin street, Boston, Mass., received at the Paris Exposition awards for its exhibit of pop safety valves and gauges. This company received three medals, one silver and two bronze. The silver medal is the highest award that it is possible to obtain in this class of goods.

Asbesto-Metallic Packing.—The C. W. Trainer Manufacturing Company, Boston, Mass., which manufacturing the well-known Olympia asbesto-metallic packing, has received a letter from a leading concern in which the statement is made that this packing is too serviceable. "We hear nothing but good words of it, where we have sent it out, but it does not wear out fast enough for us to give you many orders."

Heintz Steam Traps.—In equipping the yard of the New York Shipbuilding Company at Camden, N. J., a large number of Heintz steam traps were purchased from the W. S. Haines Company, 136 South Fourth street, Philadelphia, Pa. These traps are equally well adapted for marine and stationary uses. A special feature claimed for them is that they act very effectively even if there is considerable back pressure.

The Besly Specialties.—Charles H. Besly & Company, 10 South Canal street, Chicago, Ill., report a very extensive trade, particularly east of Chicago, for their parallel clamps. These are of all styles, are case hardened, and all surfaces are either parallel or at right angles to each other. They have become extensively used in nearly all of the leading machine shops. No more complete catalogue is issued than by this firm, and any reader who is an engineer or a mechanic in any line will want to have a copy of this catalogue at hand for reference. It is sent upon application without charge.

Water Tight Compartments.—The Long-Arm System, Cleveland, Ohio, which makes a specialty of manufacturing water tight compartments for vessels of all kinds, has found it necessary to increase its facilities and has established its offices in its new factory and warehouse at the corner of Lake and Wason streets, Cleveland, Ohio.

American Auxiliaries.—The new French Transatlantic steamer *La Lorraine*, which has just been put into commission, and which has made one or two trips, has a complete outfit of Blake vertical system pumps, furnished by the George F. Blake Manufacturing Company, 91 Liberty street, New York. These include air pumps, simplex face pumps, hot well lift pumps, bilge pumps, ballast pumps, etc. During the few trips which the steamer has made, this equipment has done great credit to its manufacturers. The sister ship, *La Savoe*, will have a similar equipment of Blake apparatus.

Export Trade.—The rapid growth of the export business of the B. F. Sturtevant Co., Jamaica Plain, Mass., manufacturers of blowers, heating and drying apparatus, engines, forges, electrical equipment, etc., is well exemplified by recent foreign orders for forges which aggregate 200 for Japan, 75 for Russia, 40 for Germany, 32 for Canada and 24 for Sweden, in addition to large numbers distributed through its London and Continental stores. Domestic demands have likewise increased in the same line during the past few months, large forge equipments having been furnished to several ship building and locomotive shops in the United States. The manual training, trades and technical schools have also been placing some large orders with this company. The town of Boulder in the new gold fields of West Australia was recently equipped by the Sturtevant Co. with generating sets for lighting and power purposes.

Willamette Iron and Steel Works.—The consolidation of the various shops of the Willamette Iron and Steel Works, at Portland, Ore., has been effected, the establishment now covering a block of property in the heart of the city, with railroad shipping facilities of the Northern Pacific Terminal Co. Many new tools have been installed, and the machine shop brought up to a high state of efficiency. The old Willamette Iron Works, to which the new establishment is successor, was engaged largely in marine work, and probably a majority of the equipments of the various local river steamers was furnished by these works. A peculiar feature of the work on the Pacific Coast is the great variety of work which is handled. Distances to eastern points are so great that the owners of almost every description of machinery prefer to have repairs and alterations made locally, and a variety of inventions is manufactured locally under patent rights. Recently, for instance, there were five different types of boilers under construction at these works, ranging from the ordinary Scotch marine boiler to the latest water tube boiler.

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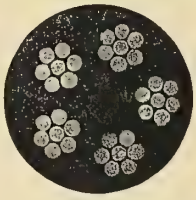
WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



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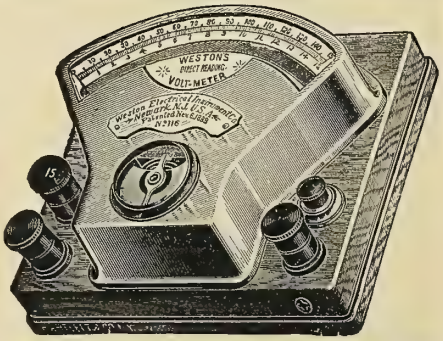

WESTON Standard Portable Direct Reading Voltmeter.

STEAM CARRIAGES.—Those of our readers interested in automobiles will find much to attract their attention in a circular issued by the Peerless Long Distance Steam Carriage Company, Washington, D. C., describing the steam outfit which this company uses in its automobiles.

EUREKA PACKING.—James L. Robertson & Sons, 218 Fulton street, New York city, have issued some little slips regarding Eureka packing which emphasize the fact that this packing outwears expensive packings, that its cost is less than most packings, that it has a flat core, giving elasticity, that the braided flax yarn gives strength, that special lubricants are worked in during the braiding, giving lubricating qualities, and finally, that Eureka is a good packing.

A FINE COMPLIMENT.—Among the exhibits at the Paris Exposition which have attracted widespread attention is a model of the Broadway Chambers Building, New York city. The constructor writes to the Bullock Electric Company, St. Paul Building, New York, which furnished the electrical outfit, as follows: "Your dynamo forms a prominent feature in our exhibit, and helped to obtain the grand prize and gold medals which have been awarded to this exhibit." The Bullock Company furnishes a very complete line of descriptive and illustrative bulletins on electrical subjects, copies of which are sent free upon application.

THE MORSE DRY DOCK COMPANY'S NEW PLANT.—In a recent issue, one of the local papers of Brooklyn, N. Y., has a description of the new plant being established by the Morse Iron Works Company, from which the following is taken: "The mammoth dock is in course of construction at Bay Ridge, between Fifty-fifth and Fifty-seventh streets, taking in an area along the water front of nearly two blocks. The dock is merely one feature of an extensive and thoroughly up to date ship repair yard now being laid out and constructed by the Morse Company. The land which the company is to use for the purpose extends a distance of 426 ft. along the water front. Besides the dry dock, which is to be a floating one, there is to be a wet dock or basin. The first 700 ft. of the basin will be about 37 ft. wide with a depth of 25 ft., and here vessels with a moderate draft will be berthed in the proximity of the machine shop. The outer 700 ft. of the channel will be 100 ft. wide and will have a clear depth of 35 ft., or sufficient to accommodate the largest ocean liners. The frontage of the three piers will aggregate 4,000 ft., and each pier will be traversed by a railway which will run through the boiler and repair shops, and also have connection with other points in the yard. At about the midlength of the southerly pier there will be a large coal pocket for the accommodation of the ships which visit the basin. Immediately to the east of the dry dock basin will be a boiler shop, and beyond this a large two-story machine and repair shop, the width of each of these buildings being 80 ft., and their combined length 600 ft. The machinery will be in every way up to date. Electric power will be extensively employed, most of the machines being run by direct connected motors, and extensive use will be made of compressed air, not only in the shop, but throughout the yard. The company estimates that it will be able to accommodate about twenty-five ships, big and little, at one time in the dry dock and the adjoining basins."

ELECTRIC POWER.—The contract has been awarded to the Sprague Electric Company, 527 West 34th street, New York city, to equip a plant of the Dunmore Steel & Iron Company, Dunmore, Pa., with electrical power. The preliminary order calls for two split pole generators and fifty motors.

LUMBER FOR SHIPBUILDERS.—Among the concerns which make a specialty of handling lumber for shipbuilders is Charles Esté, whose yard is at Twentieth street and Glenwood avenue, Philadelphia, Pa. Mr. Esté handles everything in the line of lumber, and makes a specialty of decking and of teak. He supplies everything that a ship or yacht building establishment needs in the line of wood.

INSTRUCTION BY CORRESPONDENCE.—One of the most profitable post offices in the United States is that at Scranton, Pa. The volume of business is unusually large, and is steadily increasing, the figures for the first six months of the present year showing more than double the business for the same months in 1893. This is due principally to the rapid growth of the International Correspondence Schools. Seven years ago the Schools' postage was barely five per cent of the total, but now one-third of Scranton's postage is paid by the International Correspondence Schools. Their postage has increased from an average of less than $400 to over $5,000 a month.

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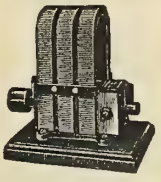

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ROWLEY, MASS.

ASHCROFT SPECIALTIES.—The Ashcroft Manufacturing Company, 87 Liberty street, New York, was awarded a medal at the Paris Expsition for the best steam gauges.

PROOF TEST FOR CHAINS.—The Jenkins Iron & Tool Company, Howard, Pa., issues a slip regarding the chains which it manufactures, giving a series of proof tests. It furnishes a safe working guide for the use of chains. Different sizes of chains are given, from 3-16 in. to 1 3-4 in.

INSTRUCTION IN CHEMISTRY.—The International Correspondence Schools, Box 1111, Scranton, Pa., have found it necessary to establish a special course of instruction by mail in chemistry. It includes mathematics, physics, theoretical, inorganic, and organic chemistry, qualitative and quantitative analysis.

THE LEE INJECTOR.—The Lee Injector Manufacturing Company, Detroit, Mich., carried off honors at the Paris Exposition in being awarded a diploma and a silver medal for the Lee ball valve automatic injector. These injectors were doing active duty in the American exhibit, therefore the award was based upon practical operation. These injectors are particularly adapted to marine work. The engineer of the new Harvard coaching launch writes: "It works perfectly satisfactorily, from 40 to 265 lb. steam feeding through two heater coils containing 222 1-2 ft. of 3-4 in. pipe each, before entering the boiler proper."

BETHLEHEM STEEL COMPANY.—The Bethlehem Steel, Co., 100 Broadway, New York city, has received orders for spare propeller shafts for the steamers *Ponce* and *San Juan*. This company is also supplying a large number of hollow shafts of fluid compressed open hearth steel, and also of nickel steel for many large plants. The new propeller shaft to replace the broken one in *La Grande Duchesse* was ordered by telegraph. This was of fluid compressed open hearth steel. Although it weighed over 15,000 lb. the shaft was delivered five days earlier than the requirements called for. A justice in a British Admiralty Court recently stated that the courts have awarded $675,000 for salvage of steamers crippled on account of broken shafts within two years, and only $475,000 for salvage due to all other causes. This emphasizes the necessity of having a thoroughly reliable shaft.

BERMUDA FLOATING DOCK.—At the yard of Swan & Hunter, on the Tyne, England, preparations are being made for the construction of the large floating dry dock for the British navy yard at Hamilton, Bermuda. In the Naval Works Bill, the British Parliament last fall authorized the construction of this dock, the old dock at Bermuda not being of sufficient capacity to handle the modern vessels. Plans for the dock have been prepared by Clark & Standfield, of London, who also made the drawings for the U. S. dock for Algiers, La., now under construction at the Sparrow's Point yard, Maryland. The contract price for the new Bermuda dock is $925,000, and it is to be completed and the acceptance trials finished in time to allow the dock to be towed to its destination in August, 1901. The dock is of these dimensions: Length over blocks, 545 ft.; breadth, 100 ft.; depth over blocks, 33 ft.; maximum lifting power, 17,500 tons. The dock will be constructed with three pontoons. When exerting its maximum power the floor will come 15 in. below the surface, necessitating the use of light gates at the ends. In this respect, the Bermuda dock differs from the U. S. Algiers dock, and there are differences also in the methods of supporting the vessels on the docks. As fresh water is scarce at Hamilton, the upper deck will be laid with teak, cambered to collect the rain water. The pumping plant for handling the dock will be in duplicate, and will be driven by compound condensing engines, steam being supplied by boilers of the ordinary marine return tube type. For protection against the coral which forms the bottom of Hamilton harbor, the underside of the pontoons will be protected by six keels of 9 in. by 9 in. timber.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

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This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

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" 51, DONALD McMILLAN, 105 Fourth St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich.
" 55, ARCHIE STALKER Electric Light & Power Plant, Cheboygan, Mich.
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TRADE PUBLICATIONS.

"The Only Way" to maintain fire under a boiler is illustrated in a 4-page folder issued by the Underfeed Stoker Company of America, 218 La Salle street, Chicago, Ill. The illustrations refer to stationary work, but similar results have been obtained on tug boats in Chicago and elsewhere.

A new steam dock capstan is being put on the market by the Browning Engineering Company, Western Reserve Building, Cleveland, Ohio. Bulletin No. 500, which has just been issued, describes this capstan. The bulletin comprises 12 large pages, and contains many illustrations showing the working parts of the capstan, and giving much information regarding its construction and operation. These capstans are being used on the Great Lakes with much success, and will undoubtedly interest many of our readers.

"Life Preservers" is the title of a catalogue issued by D. Kahnweiler's Sons, 439 Pearl street, New York. This is a business established in 1872, which, as stated in this catalogue, is devoted exclusively to the manufacture of improved life preservers, metallic life rafts, metallic and wooden life boats, and life saving appliances of every description. This firm also manufactures cork cushions, a line of fenders and other similar devices. Full information and copies of the catalogue can be had by referring to MARINE ENGINEERING.

Syphons, jet pumps, injectors, and other specialties manufactured and sold by the Tranter Davison Manufacturing Company, 105 Water street, Pittsburg, Pa., are described in a pocket size catalogue just issued. The jet pumps have been used to a large extent in pumping bilge water and for other purposes. They are fully illustrated and described, and full information given regarding sizes, gallons pumped per hour, etc. The jet pumps are also fully described and illustrated. Copies of the catalogue are sent upon application.

Users of woodworking machinery should send to Baxter D. Whitney, Winchendon, Mass., for a sample of curly maple, to show the quality of work which is done by the Whitney wood scraping machine. As stated on the sample, it is a specimen of the work of this machine, which is fed at the rate of 75 lineal feet per minute. A very neatly printed and well illustrated 8-page folder will be sent to inquirers. A number of illustrations add much to the value of the circular. This circular will be especially appreciated by any one who has to do with fine cabinet work or interior finish of any kind.

Steam Specialties manufactured by the Pittsburg Gauge & Supply Company, Pittsburg, Pa., are described in a very handsome and complete catalogue which is now ready for distribution. It comprises 50 pages, and has a complete index. The printing is exceptionally good, and the illustrations are numerous. The specialties include safety water columns, feed water regulators, gauge cocks, blow-off valves, gauges of all kinds, oil filters, boiler tube cleaners, engine clocks, thermometers, etc. The catalogue is one which every one of our readers interested in the subjects should have on hand for reference.

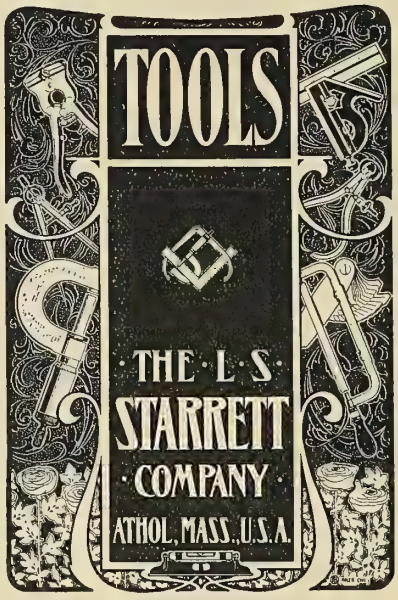
Draughtsmen and business men and others who wish pens, ink erasers, penknives, etc., which are suited to their own wishes, should send for a catalogue covering these specialties issued by the Miller Bros. Cutlery Company, 309 Broadway, New York. A hundred or more different styles, sizes and kinds of pens are illustrated, including a full line of draughtsmen's pens for red ink as well as black and other inks. There are also many pens for special work, such as carbon manifolding, etc. There are about twenty-five different styles of ink erasers illustrated, with a variety of different styles of blades, also a full line of penknives especially designed for the draughting table and the office desk.

The Pittsburg riveting machines, manufactured by Chester B. Albree, Allegheny, Pa., have a 48-page catalogue devoted to them. The many types of riveters are illustrated, and the catalogue contains in addition a description of each of these, together with considerable information regarding the subject of mechanical riveting, tables regarding rivets, etc.

The George E, Dow Pump & Engine Company, First and Natoma streets, San Francisco, Cal., has issued a very complete catalogue of its steam and power pumps. The catalogue is handsomely published, comprises 112 pages, with a complete index. The illustrations are very numerous, and altogether the catalogue is very complete and comprehensive.

"Object Lessons in Vertical Milling Machines" is the title to a most useful book issued by the Becker-Brainard Milling Machine Company, Hyde Park, Mass. The booklet is designed to teach some of the advantages of the Becker vertical milling machine in general practice. A number of illustrations add much to the value of the booklet in that they show the working of the machines under various conditions.

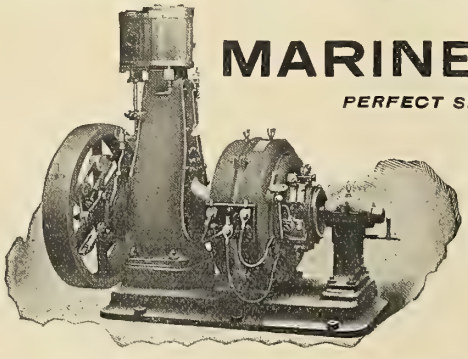
Probably no more complete and comprehensive a catalogue has ever been issued than the one which is just being sent out by Manning, Maxwell & Moore, 85-89 Liberty street, New York. Heretofore the catalogue of this company has been one of the wonders in the trade, but everything has been included in one volume. This year the company has found it necessary to issue two volumes, the first of which is now at hand and which is devoted exclusively to metal working and wood working machine tools and other attachments. It comprises over 700 pages in imperial quarto and is bound in stiff board. The volume is most profusely illustrated with every conceivable variety of machines and tools, and accompanying each specialty are tables of sizes, dimensions, etc., and concise descriptive matter. The illustrations are designated by numbers and the arrangement is such that orders can be sent by telegraphic code without difficulty. The book is 10 to 13 inches in size, and some idea of its comprehensiveness will be gained when it is stated that the index to the contents covers six pages, three columns to the page. This company has a large store in Chicago, 22-26 South Canal street, where a full stock of tools and machines is carried; also an office in Pittsburg in the Park Building, and one in Cleveland, in the Willamson Building. The main office in New York occupies an immense floor space, and outside of this there are three large warehouses filled with machinery for prompt delivery. Such an expensive catalogue can hardly be for general distribution, but we have no doubt that any shipbuilding or engineering establishment which has use for machine tools of any kind will be able to secure a copy by mentioning MARINE ENGINEERING.



SEND FOR
NEW CATALOGUE
No. 16 L
112 PAGES—ILLUSTRATED
FREE

Electrical trolley hoists and traveling cranes are illustrated and described in an exceptionally neatly printed 4-page folder issued by the Sprague Electric Company, 527 West 34th street, New York, as Bulletin No. 203. The usefulness of these hoists in shipyards, warehouses, and elsewhere is explained in the text.

Acetylene gas generators manufactured by the J. B. Colt Company, 404 East Thirty-second street, New York, have been introduced on a considerable number of yachts and other vessels during the past year or two. This fact will add much interest to the catalogue issued by the company describing the generators. A number of illustrations show the different types and sizes of plants, and the descriptive matter is exceptionally complete. Considerable attention is also given to the subject of acetylene burners and of searchlights. These lights have great power, and are easily applied to any boat or vessel which has an acetylene plant.



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MARINE GENERATING SETS
PERFECT SERVICE. LEAST SPACE. WEIGHT AND ATTENTION.
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for Docks, Warehouses, Freight Yards and Terminals.
Send for new Bulletin No. 20315.
LUNDELL MOTORS
for shipyard machinery. Catalogue No. 5815.
SPRAGUE ELECTRIC COMPANY
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Chicago: Fisher Building *Boston: 275 Devonshire St.* *St. Louis: Security Building*

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YOU SHOULD READ

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Is the title of a little pamphlet that tells of the experience of engineers who have used graphite for better lubrication

SUPPOSE YOU SEND FOR ONE?
NO CHARGE

Joseph Dixon Crucible Co.
JERSEY CITY, N. J.

Steam regulating devices and steam pumps manufactured by the Mason Regulator Company, 6 Oliver street, Boston, Mass., have had a new catalogue just issued regarding them. It is a pocket size edition of 40 pages, very fully illustrated, particularly with sectional views of many of the specialties. Among the specialties of interest to marine people are steam pumps of many types and kinds, reducing valves of several kinds, by-pass valves, etc. Copies can be had upon application.

Boilermakers' and shipbuilders' machinery in great variety is fully illustrated and described in a complete catalogue just issued by the Cleveland Punch & Shears Works Company, Cleveland, Ohio. The book comprises about 70 large pages, and a number of supplementary sheets. The tools shown include a full line of punches, shears, radial drills, rotary planers, bending rolls, plate straightening rolls, hammers, presses, etc. Any one who has to do with shipbuilding, boiler, tank, or engine work, will find a copy of this catalogue a most valuable one for reference. Nearly all of the illustrations are full page size.

Users of lanterns and signal lamps of all kinds will be interested in the new folder just issued by Russell & Watson, Buffalo, N. Y. A line of lanterns is illustrated in this folder, and the special features of the fluted lenses used are referred to. Any user of lamps will undoubtedly have sent to him a sample showing the construction of these lenses upon application.

"As Others See Us" is the title to a 50-page booklet issued by the H. W. Jones Manufacturing Company. On each left hand page is a letter from some concern or shipbuilding company which has used the Johns asbestos roofing or other asbestos product. Pictures on the right hand pages add much to the interest and value of the booklet, as they show the variety of manufacturing establishments, steamboats, and other structures upon which the materials have been used.

The Flinn differential steam trap is now being manufactured and sold by the Harrison Safety Boiler Works, Philadelphia, Pa., which have just issued a neat and complete catalogue regarding this trap. The trap has already been put into use on many steam vessels, both in the government service and merchant marine, and its construction is such that it is especially adapted to marine work. The caealogue shows a number of illustrations and gives much information which users of traps would want to know.

The subject of steel and wooden steamboats, side wheel and stern wheel, is covered very fully in the catalogue just issued by the James Rees & Sons Company, Pittsburg, Pa. It comprises nearly 50 pages, and there is an illustration to nearly every page. These pictures show typical river boats which have been built by this company for use on the Mississippi and Ohio Rivers and other waters, for both freight and passenger service, and they include boats of all draughts, some of which are only about 18 inches. A few propeller boats, mostly of light draught, are also shown. The catalogue is of much interest in that it shows a distinct type of boat which has been developed to a greater extent in this country than in any other part of the world.

Draftsmen and others who make any use of drawing materials, mathematical and surveying instruments, will have sent to them upon application the thirtieth edition of the catalogue issued by the Keuffel & Esser Company, 127 Fulton street, New York, if reference is made to MARINE ENGINEERING. It is a volume of about 500 pages, or 50 pages more than the preceding edition. The extra pages were necessitated by the addition of a number of new specialties, and by the elaborating of some descriptions. The index is particularly complete and a most valuable one for references. In this catalogue much new matter is given on the subject of slide rules, planimeters and pantographs. Fine, narrow steel tapes are also given much more attention. There is also much information on the subject of current meters, tide gauges, aneroids, thermographs, sextants, octants, etc.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

VAN STONE PIPE JOINT

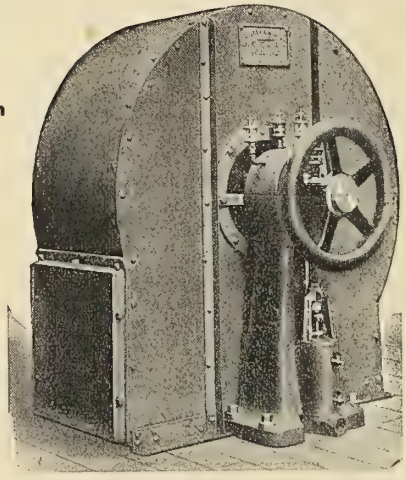
Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

N. Y. Office: Park Row Building.

BUFFALO FORCED DRAFT FANS

Steam Electric



Buffalo Steel Plate Steam Fan For Forced Draft and Ship Ventilation.

BUFFALO FORGE COMPANY,

BUFFALO, N. Y.

NEW YORK OFFICE: 39 Cortlandt Street.

A paint for protecting iron and steel surfaces is described in a folder issued by the Joseph Dixon Crucible Company, Jersey City, N. J. It refers to Dixon's silica-graphite paint.

Two catalogues are just issued by the International Correspondence Schools, Box 1,111, Scranton, Pa. One is devoted to a description of the school of mechanical engineering, the other to electrical power and light.

A catalogue of machine tools for working plates, shapes, and bars is issued by the Hilles & Jones Company, Wilmington, Del., and known as Catalogue Q. The catalogue is about 9 inches square, is printed on heavy coated paper, and comprises 24 pages. It has from two to four pictures to a page. The several machines illustrated include punches and shears in great variety of size and shape, together with bending and straightening machines, planers, bending rolls, etc.

The B. F. Sturtevant Company, Jamaica Plain, Mass., has found it necessary to issue a second edition of Catalogue No. 101, which is devoted to the subject of steel plate planing mill exhausters. Those of our readers who did not secure a copy of the first edition may now be supplied. A second edition has also been issued of Bulletin S, describing the Sturtevant four-pole motors and generators for direct current.

Users of trucks and wheelbarrows will be interested in a large four-page folder issued by Pugley & Chapman, 180 West street, New York. This folder contains a large number of illustrations of trucks of all kinds, such as would be used on steam vessels and wharves for handling baggage, freight, etc. Many wheelbarrows of the type used for handling coal and other freight are illustrated. There are also other articles illustrated of interest to marine people, such as portable forges, galvanized fire buckets, etc.

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Is durable, impervious, unchanging in color, firmly adherent. Combination paints based on zinc white have all these qualities.

OTHER PAINTS

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"Paints in Architecture,"
"The Paint Question."

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NEW YORK

BUSINESS NOTES.

LUBRICATING OILS.—During the recent automobile exhibit in Chicago we are informed that many owners of automobiles and representatives of automobile concerns specially requested Charles H. Besly, 10 North Canal street, Chicago, to send a can of Helmet oil and some Bonanza oil cups, as each "wanted to win the race." These and the many other specialties of this firm are fully described in a handsome catalogue a copy of which is sent to all inquirers.

A FINE YARD.—In a recent letter the Greenport Basin & Construction Co., Greenport, L. I., writes: "We are about to launch a set of railways the equal for size of any on the coast. The cradle will haul a 175 ft. yacht or vessel and we can get at any stage of the tide 18 ft. of water. We have also begun to increase the size of our yacht basin and when completed will be able to store yachts drawing 15 to 22 ft. of water. We have built a new storehouse far yachts' goods and believe we have one of the finest storage spots on the coast. Our new railway is provided with 2 1-4 in. chain; the gears of the engines have been supplied by H. I. Crandall & Sons, Boston."

IMPROVED DIE PLATE.—The Crane Company, 10 North Jefferson street, Chicago, Ill., is introducing the Crane adjustable die plate. It is a very simple tool, made of malleable iron, and has the fewest possible number of parts. These parts are all made interchangeable. The cutting off tool has been discarded, although it can be bought separately for a nominal price if desired. The leader screw has been adapted as a substitute, as this is believed to be indispensable to the easy and correct working of large dies. A complete description with illustrations of this tool are found in the pocket catalogue, a copy of which will be sent by the Crane Company upon application.

YACHT HARDWARE.—Owing to the large increase in its many specialties, the concern formerly known as the Enos Sheet Holder Company, Peabody, Mass., has changed its name to the Marine Hardware Company. This company will manufacture a complete line of windlasses and winches for yachts and small vessels, brass and bronze marine hardware, light and heavy brass castings, etc.

CORK TILING.—The Cork & Floor Tile Company, 139 Congress street, Boston, Mass., has its cork tiles specified on the three new tramp steamers building at the Maryland Steel Company's plant for the Boston Towboat Company, having recently completed two large tile jobs on the steamers *Hyades* and *Pleiades*. Among the recent contracts in hotels, this company has secured the contract for laying cork tiles in the new dining room of the Atlantic Hotel, Bridgeport, Conn., and is laying tiles on the International Navigation Company's steamer *Waesland*.

TWO GRAND PRIZES.—The John A. Roeblings Sons Company, Trenton, N. J., secured two grand prizes at the Paris Exposition. One prize was for wire one-one thousandth of an inch in diameter. One mile of this wire weighed a quarter of an ounce. The exhibit included wire of all kinds, from this up to samples of cables used on the Brooklyn Bridge. In addition to the two grand prizes, the company received two gold medals. The second exhibit of the company was a full line of electrical trolley tracks and wires. A feature of the exhibit which attracted much attention was an exact model of the Brooklyn Bridge. Owing to the great increase in its trade, this company has very largely increased its manufacturing capacity, and has built a complete wire mill, which is probably the most extensive single mill in the world.

AN ISLAND SHIPYARD.—The Townsend & Downey Shipbuilding Company, office Produce Exchange Annex, New York city, now has in full operation its shipyard on Shooters' Island, Newark Bay, New York harbor. There are 43 acres of land within the lines of the company. The wharfage basin is 1,100 by 550 ft. The draft of water is 20 to 25 ft. at low water. The machine shop is 200 by 90 ft., and is a new steel building, equipped with all modern appliances, including a 30-ton electric crane. The blacksmith shop, 120 by 60 ft., is equipped with 17 forges, steam hammer, etc. The sawing and planing mill is 225 by 60 ft., and is furnished with all modern mills and tools, together with woodworking machinery, capable of doing any work, from the heaviest to fine cabinet work. The plate and angle shop is 200 by 80 ft., and is equipped with complete angle furnaces, bending floors and heavy machinery and tools for iron and steel shipbuilding. All of the machinery is driven by electric power. The mold loft is 245 by 75 ft. The company owns a 93 ft. waterfront and wharf 800 ft. long at Mariners' Harbor, directly opposite the works on the shore of Staten Island. The company also owns and operates it own ferry boat between the works and Staten Island. At present it is the side wheeler *Edmund Butler*. This boat was hauled out by fast gear in twelve minutes from the time it was centered on the new marine railway, no doubt a record time. The steamship *North Sands*, 3,526 tons burden, with 550 tons of water and 400 tons of coal in her, was hauled up on this marine railway in twenty-nine minutes from the time she was centered on the keel blocks. There are two speeds at which the machinery can be run, one being twice as fast as the other. The *North Sands* was hauled up at slow speed, to guarantee absolute safety. The company is now building a twin screw hydraulic dredging ship for the U. S. War Department for use at Sabine Pass. Delivery of this vessel will be made in the middle of December. The company is also building a barge for the Tidewater Oil Company. The company has recently been awarded a contract by the U. S. Government for a composite ship to replace the coast survey vessel *Bache*.

THERE IS BUT ONE EUREKA Packing

And that bears this trade-mark. PATD EUREKA TRADE MARK *which is a Guarantee of Perfection.*

There are IMITATIONS, but only one DIAMOND, and that's "Eureka." It's the cheapest good packing made; a friend to the ENGINEER a profit to the user.

We make
INDICATORS, PLANIMETERS, REDUCING WHEELS, THREEWAY COCKS, &c,
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Branches: BOSTON—PHILADELPHIA.

The name
Westinghouse
Is a guarantee

Westinghouse
Electrical
Apparatus

The Standard of Mechanical Design and Electrical Efficiency

Adopted for use in nearly all principal docks and shipyards

Westinghouse Electric & Manufacturing Co.
PITTSBURG, PA.
All principal cities in U. S. and Canada
61 e

KENNEY FLUSHOMETERS.—The flushometer manufactured by the Kenney Company, 72 Trinity place, New York, which has met with much success in marine work, has been adopted in one of the largest office buildings in the country, which is being built in New York, on the corner of Broad street and Exchange place.

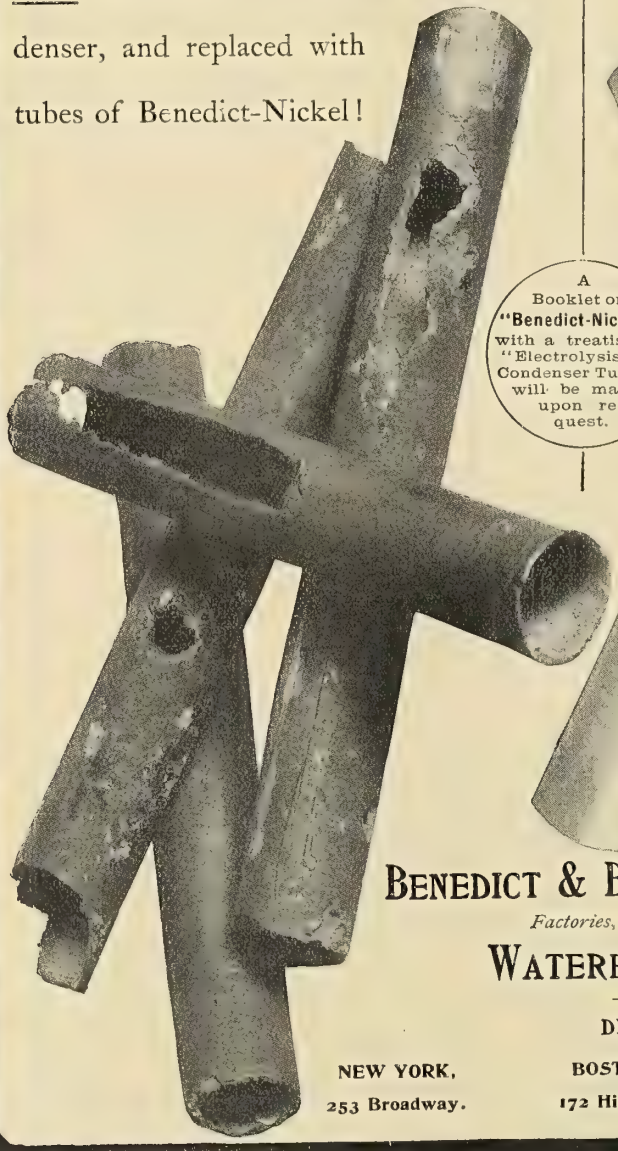
BOILERS FOR STEAM YACHT ELECTRA.—The Almy Water Tube Boiler Company, Providence, R. I,, recently received an order and has just filled it for four boilers for the steam yacht *Electra*. These boilers will have 115 sq. ft. of grate surface, and 4,000 sq. ft. of heating surface. They occupy the same place as the See water tube boilers, which have been removed to make place for the Almy. We are informed that there is an increase of 600 ft. in the heating surface and of 41 ft. in the grate surface. This is the third set of boilers in this yacht, as she originally had Scotch boilers.

PNEUMATIC DRILLS.—Dunlap & Plum, Columbus, Ohio, manufacturers of pneumatic tools, up to the present time have limited themselves to the manufacture of pneumatic drills. In a recent test we are informed that one of these drills cut a 1 1-4 in. hole through 5 ft. of steel in four hours. This time included the necessary delays, etc.

JOHNS ASBESTOS SPECIALTIES.—The H. W. Johns Manufacturing Company, 100 William street, New York, has been awarded the contract for the asbestos fire felt covering for boilers, steam pipes, and brine pipes for a large brewery to be built in Havana. The work is done by the company's own men, who are sent down for the purpose. In this connection it is interesting to call attention to the booklet which is sent by this company upon application describing the several asbestos specialties. It refers to the Johns Asbesto-Metallic Kearsarge cloth wound packings and other goods.

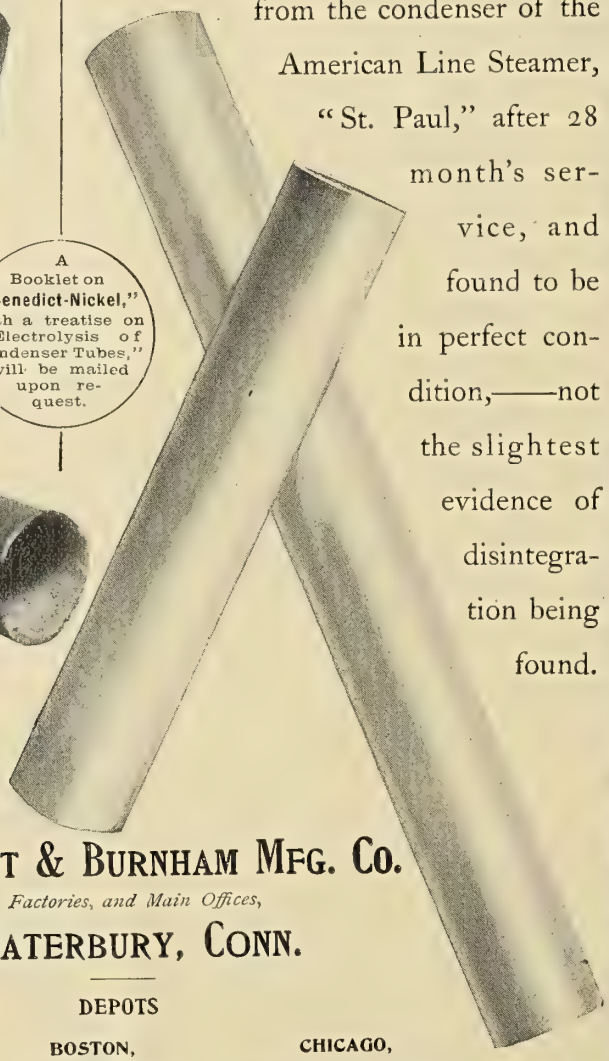
The Effect of Electrolysis

Brass Tubes,——taken from a condenser, and replaced with tubes of Benedict-Nickel!



A Booklet on "Benedict-Nickel," with a treatise on "Electrolysis of Condenser Tubes," will be mailed upon request.

"**Benedict-Nickel**" Tubes,——taken from the condenser of the American Line Steamer, "St. Paul," after 28 month's service, and found to be in perfect condition,——not the slightest evidence of disintegration being found.



BENEDICT & BURNHAM MFG. CO.

Factories, and Main Offices,

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DEPOTS

NEW YORK, 253 Broadway. BOSTON, 172 High St. CHICAGO, Cor. Lake & Clark Sts.

V. WARING N.Y.

THE MAYO LIFE BOAT.—The Rescue Life Boat Company has been organized at Muskegon, Mich., to manufacture life boats under the patents of Captain R. D. Mayo. The boat is described as follows: It consists of a metallic cylinder 30 feet long, with rounded ends. The diameter at the middle is six and one-half feet. The seats are so arranged that no matter how the boat tosses and rolls they are always at the bottom. Air is provided for the occupants by a pipe. The life boats will lie on the deck of a vessel, and when an accident occurs the passengers and crew enter through a man-hole, which is closed from the inside. If the ship sinks the lifeboat remains on the surface. A boat to accommodate 50 persons will cost $600. It is announced that four of these boats have already been ordered by the Barry Transportation Company, of Chicago.

THE NEW RISDON YARD.—The Risdon Iron Works, San Francisco, have recently purchased the property of the old Pacific Rolling Mill Company in the Potrero, San Francisco. This property consists of some 32 acres of ground, immediately adjoining the Union Iron Works, and has a deep water frontage of over 1,700 feet. Application has been made to the Board of State Harbor Commissioners for site for a new dry dock. This dry dock will be 500 feet in length by 100 feet in width. New wharves are now in course of construction. Several new steel frame buildings are contemplated and large orders covering the structural materials for the following buildings have recently been placed: Machine shop, length, 308 feet; width, 100 feet. Total lift over main floor, 45 feet. Boiler shop, length, 140 feet; width, 180 feet. Total lift over main floor, 40 feet. Machine and ship blacksmith shop, length, 300 feet; width, 60 feet. Foundry, length, 177 feet; width, 160 feet. Ship joiner shop, length, 140 feet; width, 81 feet. The machine shop will be equipped with four electric traveling cranes of the following capacities: One 50 ton, one 20 ton, one 15 ton and one 10 ton capacity. Each crane will be of the most modern type and equipped with five ton auxiliary hoists. The boiler shop crane equipment will consist of one 60 ton; one 20 ton and one 10 ton electric traveling crane, each equipped with 5 ton auxiliary hoists. The foundry crane equipment will consist of one 30 ton and one 20 ton electric traveling crane with five ton auxiliary hoists. The ship blacksmith shop will be equipped with eight jib cranes of five and ten tons capacity each. The machinery equipment throughout will consist only of the most modern tools. The entire plant, with the exception of the steam hammers in blacksmith shop, will be operated by electricity. Direct current will be used for the cranes and alternating current for the machinery equipment. Separate motors will be installed in each department. The cost of electric power for operation of this plant for the first year will amount to over $30,000. Risdon representatives are now in Washington preparing estimates for the new battleships for the United States Navy.

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HEINTZ STEAM SAVER

Has unique points that adapt it for

MARINE SERVICE

It does perfect work for others. It is guaranteed to do yours. We will prove this and tell you all about it for the asking.....

WILLIAM S. HAINES CO.

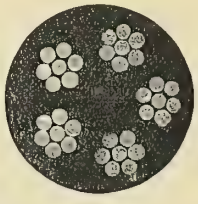
136 South 4th Street

PHILADELPHIA

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



The Strength of Wire.
The Elasticity of Manila.

ADDRESS
The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

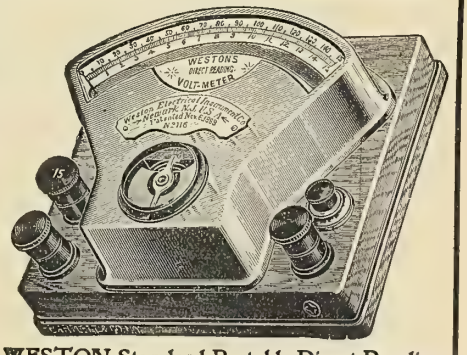
WESTON STANDARD PORTABLE DIRECT-READING

Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,
114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

ASBESTO-METALLIC GOODS.—The C. W. Trainer Manufacturing Company, 89 Pearl street, Boston, Mass., which manufactures Olympia asbesto-metallic goods, is in receipt of a letter from the chief engineer of the Edison Electric Illuminating Company of Boston, stating: "I have used your Olympia asbesto-metallic woven sheeting with complete success. The woven tape is the finest thing for steam chest joints I have ever used. I have run 125 days on your letter B square piston rod packing, which is good work for soft packing, with a steam pressure of 160 or 170 lbs."

UNION MADE OVERCLOTHES.—Ten years ago Mr. Hamilton Carhartt established a small shop on one of the most unsightly places in Detroit, Mich., for the purpose of making overclothes. He determined to make all his employees as comfortable as possible, so that there should be no reason for their work not being of the best quality. With small beginnings, the plant has now developed into a fine large one. The buildings are of brick, surrounudedby lawns, in which are flower beds, shrubbery, etc., and all the work rooms are light and airy. Knowing the dangers which lurk in sweatshop clothes, Mr. Carhatt went to the other extreme to avoid these dangers. The entire basement of the main building is fitted up with dressing, toilet and wash rooms, and in all the work rooms, although space is economized, there is no unlue crowding. As the noon interval is short, the employees take lunch with them, and tea and coffee are served by the management. The employees number nearly 600, of whom far he largest proportion are girls. They constitute almost the entire membership of local union No. 74, United Garment Workers of America. The factory is run under an agreement between employers and employed, by which the union standard of wages is accepted and provision made for arbitration in case of any want of accord between the parties to the agreement. The employees are treated as though they were assistants to their employers, and therefore take much interest in their work. They have business meetings twice a month, and occasional social functions besides, which relieve the monotony of life, and promote acquaintance, and they feel that if they ever have ground for complaint they have an orderly way of making their grievances known. As a matter of fact, however, they have never had occasion to appoint a committee on grievances, and have never had any complaints to make. Regarding the garmens of the firm, a recent circular says: "No manufacturer can duplicate the goods that we make at a less price and give the same fit, finish and fabric, unless he beats his employees or his creditors. Our business, approaching half a million, built up almost in a night, is not the result of any 'gold brick' scheme, but of good honest values first, last, and all the time. In our apron overalls we put four more yards of fabric to the dozen, and in our waist overalls, coats and shirts two more yards of fabric to the dozen than any of our competitors, and these facts we can easily prove to any one interested. And mind you, we do not consider any manufacturer as a competitor who is ashamed to look his employees in the face on pay day. We confine the sale of our goods to one merchant in each section where the trade will warrant, and advertise and push them in every legitimate manner. Our business is not the largest, never was and probably never will be; but it is large enough to secure all the advantages possible in purchases, and not too large for us to lose sight of our customers' interests. We have never made an effort for quantity. Superior quality is the goal of our ambition. We have honest competition, and do not claim to possess all the manufacturing ability extant, but we feel sure that we are unexcelled in our particular line. Our business is manufacturing men's working garments and nothing else. Our consant study is not how cheap, but how good. Doing an exclusive business in our line, we have some facilities for this study, and have acquired some 'know how.'"

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

DRAUGHTSMAN SEEKS POSITION.

Engineering student desires position as draughtsman. First class work; sample sent upon application. H. M. HOWELL, Keller, W. Va.

COMPOUND ENGINE FOR SALE AT A BARGAIN.

A steeple compound with jet condenser and air pump; cylinders 3¼ and 5½, 5 inch stroke. Brass cylinder jackets and receivers. Link motion, finely built, run only a few weeks. Price, $140. FRANK JONTZEN, 221 Champlain St., Cleveland, Ohio.

"HAWKINS' EDUCATIONAL WORKS."

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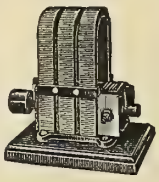
THEO. AUDEL & CO., Publishers, 63 Fifth Ave., New York City.



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GEIPEL STEAM TRAPS.—The Geipel steam trap received the highest award at the Paris Exposition. This trap is manufactured by Thorpe, Platt & Co., 99 Cedar street, New York. A 6-page folder is issued by this firm, which illustrates the trap and explains fully its general construction and its many features.

SPRAGUE ELECTRIC COMPANY.—At the recent meeting of the board of directors of the Sprague Electric Company, 527 West Thirty-fourth street, New York, the following officers were elected for the ensuing year: John Markle, president; Edward C. Platt, first vice-president; Allan C. Bakewell, second vice-president; Charles P. Geddes, secretary; H. R. Swartz, treasurer and assistant secretary. Owing to the great increase in its business, the Sprague Company has found it necessary to open a branch office in the Security Building, St. Louis. Mr. C. B. White, who has had many years of experience in electrical work in the West, will have charge of this office. The Sprague Company now has branch offices in Boston, Chicago and St. Louis, and agencies in nearly every one of the principal cities in this country and throughout the world.

CORRESPONDENCE INSTRUCTION.—Ambitious mechanics who desire to obtain better positions and higher wages should investigate the advantages afforded by the corrrespondence method of instruction in the theory of trades and engineering professions. Without leaving home or losing time from work, the student pursues a thorough course of study under the direction of able instructors who are always ready and willing to assist him. Instruction papers, prepared especially for teaching by mail, are furnished free. In addition, special information regarding any difficulties in their studies is furnished students without extra charge. A mechanic with practical experience supplemented by theoretical education can command a better position than a man without such an education. The result of long experience in teaching by mail shows that no other method so fully meets the requirements of men who have but little time for study. Full information regarding the many courses in the International Correspondence Schools, Box 1111, Scranton, Pa., can be had free upon application.

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Established 1874.

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This Association limits its membership to licensed and commissioned marine engineers and has the local associations in the various parts of the country given below. Delegates from each local association meet in January each year in annual convention and for the election of officers.

ADDRESSES OF CORRESPONDING SECRETARIES.

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" 18, SAMUEL SHOEMAKER, 9th St. bet. Washington and Commercial, Cairo, Ill.
" 24, JOS. M. ST. JOHN, 223 South First St., Paducah, Ky.
" 27, N. P. SLATER, 1010 Garfield Ave., Bay City, Mich.
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" 33, W. J. DU BOIS Tompkinsville, S. I., New York.
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" 36, JOSEPH THOMAS, 57 Sea St., New Haven, Conn.
" 37, E. D. LOCK, 1304 S. 19th St., Toledo, O.
" 38, W. H. COLLIER, 73 Starr Boyd Building, Seattle, Wash.
" 39, FRANK W. BUCHNER, 124 Chestnut St., Erie, Pa.
" 40, H. N. POWELL, 1626 Ave. N½, Galveston, Tex.
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" 43, GEORGE A. MILLER, 828 Wall St., Port Huron, Mich.
" 44, CHRIST DAHL, 534 W. 2d St., Manistee, Mich.
" 46, D. W. FARRELL, Clayton, N. Y.
" 47, ARCHIE DE GRAW, 533 Division St., Sault Ste. Marie, Mich.
" 48, JOHN ERVING, 1510 Monroe St., Sandusky.
" 51, DONALD McMILLAN, 105 Fourth St., Muskegon, Mich.
" 53, HARRY STONE, Marine City, Mich.
" 55, ARCHIE STALKER Electric Light & Power Plant, Cheboygan, Mich.
" 57, E. B. MEEKER, 71 Abeel St., Rondout, N. Y.
" 58, GEO. D. ANDERSON, Georgetown, S. C.
" 59, WALTER M. MILLER, 221 Saratoga St., E. Boston, Mass.
" 62, NATHAN S. LAWRENCE, 30 Connecticut Ave., New London, Conn.
" 65, WM. McCARREL, 8 Vernon St , Charleston, S. C.
" 67, WM. S. BRADLEY, Saugatuck, Mich.
" 70, CHAS. T. SMITH, 211 Bond St., Astoria, Ore.
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" 77, JOS. WEBER, 820 Buffalo St., Manitowoc, Wis.
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" 91, MARTIN JOYCE, 8 Spruce St., Harbor Sta., Ashtabula, O.
" 92, JOSEPH D. BUDD, P. O. Box 50 Saginaw, E. S., Mich.
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" 94, GEO. R. JONES, Box 222, Washington, N. C.
" 101, J. C. BILLUPS, 305 Henry St., Portsmouth, Va,
" 102, CHAS. LA BOUNTY, Box 563, So. Haven, Mich.
" 103, C. H.. HALL, Box 512, New Berne, N. C.
" 104, J. H BLUMER, Moss Point, Miss.

TRADE PUBLICATIONS.

Draughtsmen will find very useful a pocket size booklet of samples of blue print papers and cloth which is ready for distribution by the Elliott Electric Blue Print Company, 723 Liberty avenue, Pittsburg, Pa. In addition to samples of paper there is much information regarding sizes, prices, quality, etc., and also regarding blue printing apparatus and other specialties.

Shipbuilders' and boiler-makers' tools, especially steam and pneumatic riveters and hammers and cranes, are the chief specialties illustrated and described in catalogue No. 27, issued by the Chambersburg Engineering Company, Chambersburg, Pa. The catalogue comprises 26 pages, and several varieties and sizes of the tools are illustrated and concisely described.

Users of search lights will find interesting a folder which is now being distributed by Thomas P. Benton & Son, La Crosse, Wis. It contains large illustrations of search lights and projectors in great variety, and much information regarding the mechanism and the construction of the lamps is given, together with names of boats upon which they are used, copies of testimonials, etc.

Wrenches and other machinists' tools, manufactured by the Billings & Spencer Company, Hartford, Conn., have a special catalogue devoted to them, copies of which can be had upon request. The catalogue comprises 92 pages and is very fully illustrated with pictures of a large line of forgings, which include in addition to wrenches of all kinds, clamps, calipers, chisels, screwdrivers, plyers, gauges, screw plates, hammers, etc.

Air compressors for use in ship yards and other engineering establishments where pneumatic tools are used have a very handsome catalogue devoted to them, just issued by the Rand Drill Co., 100 Broadway, New York. The catalogue is a very handsome specimen of typographic work and is very fully illustrated with a large number of compressors of different types and sizes and contains much valuable information on the subject of the use of compressed air.

Shaw's compound propeller pump is one of the recent specialties being put on the market by the Quinby Engineering Company, 915 Ridge avenue, Philadelphia, Pa., and which is described and fully illustrated in a large, 4-page folder which is now ready for distribution. The designing of the pump is fully illustrated and its application is well explained. The descriptive matter is very complete, stating that the pump is especially suitable for use in dry docks, tank steamers, etc.

Sheets and pillow-cases for yachts, steamships and other vessels are the specialties manufactured by the Defender Mfg. Co., which are told about in considerable detail in two booklets ready for distribution. One booklet describes the factory and the different styles of finish of goods. The other is devoted almost exclusively to illustrations of the drawn work and other forms of finishing. Copies of these booklets, with full information regarding the different sizes, qualities, etc., can be had from the Defender Mfg. Co., New York.

Electric steering gear, manufactured by the Electro-Dynamic Company, 224 Ionic street, Philadelphia, Pa., has a special catalogue devoted to it, which is now ready for distribution. The frontispiece is a fine picture of the Russian cruiser, *Variag*, which is equipped with this steering gear, and which shows the vessel at high speed when on her trial trip. The text of the catalogue is very complete and many illustrations are given of the motors, generating sets and of the gear itself as it is installed in the ship. It is a catalogue of unusual qualities, as far as appearance goes.

Users of springs will find a very complete catalogue in the one which has just been issued by the American Steel and Wire Company, Worcester, Mass. The subject is fully covered, including springs and coils of every style, size and shape and for all uses.

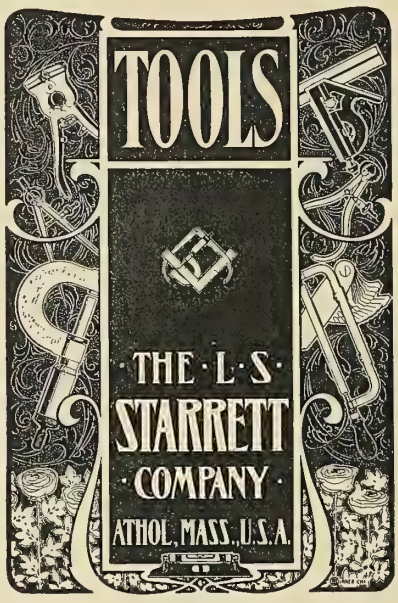
The Sprague Electric Company, 527 West Thirty-fourth street, New York, describes, in its latest bulletin, No. 204, the application of Lundell motors to electric vehicles. There is considerable information regarding the motors and several illustrations are given showing the manner in which the motors are applied to vehicles of different types.

Yachtsmen and other users of small boats will find most useful and instructive a catalogue which has just been issued by the Marine Engine & Machine Company, Harrison, N. J. Two fine launches are illustrated, one a 36 footer, with a draft of only 13 in. and equipped with an alcho vapor motor. Another picture is of a 35 footer drawing 30 in. of water. Quite a little attention is also given to yacht tenders equipped with alcho-vapor motors.

"**Something About Coverings**" is the title to a pocket size booklet on the subject of asbestos covering which has just been issued by the H. W. Johns Mfg. Co., 100 William street, New York. The descriptive matter is very complete and a large number of illustrations are given, showing the manner in which asbestos covering is applied to numerous uses. What adds much to the interest of the booklet is the series of pictures, two of which are of the tanks in the Standard Oil plant which were destroyed by fire in New York Harbor last summer. These pictures are exceptionally fine.

Users of electric specialties and lamps will find valuable a series of bulletins issued by the General Incandescent Arc Light Company, 572 First avenue, New York. The bulletins show a great variety of incandescent arc lamps. The mechanisms by which the lamps are operated are fully illustrated and described, and many types of lamps, some of which are exceedingly decorative and effective, are shown. Other bulletins include specialties that go with electric work, such as push buttons, switches, circuit breakers in large variety, junction boxes, ventilating fans in great variety and incandescent bulbs.

Pumping machinery manufactured by the Epping-Compenter Company, Pittsburg, Pa., is most completely and thoroughly illustrated and described in a fine catalogue comprising 60 pages, which is now ready for distribution. The printing is on heavy coated paper, in red and black. The illustrations are large and of excellent quality, and altogether the catalogue is a most business like one and excellent from a mechanical point of view. An index adds much to its completeness, showing the great variety of pumps manufactured by this company. They include bilge pumps, boiler feed pumps, air pumps, circulating pumps, fire pumps, etc. There is also considerable useful information on the subject of pumps and hydraulics.



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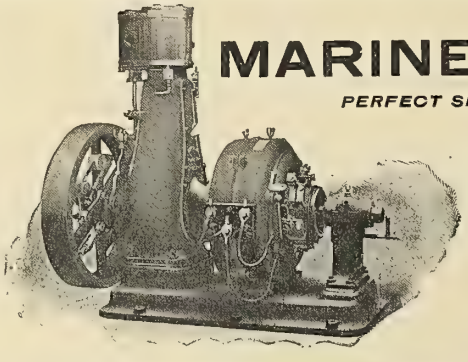
NEW CATALOGUE
No. 16 L
112 PAGES—ILLUSTRATED
FREE

Death of Mr. J. B. Gray.—Mr. Jerome Bethel Gray, whose death occurred on October 19, at his home in West Chester, Pa., filled the measure of a man and a gentleman, and those who knew him best will feel his loss most. He combined to a remarkable degree social graces, kindness of heart and the acumen which secures success in business. Those who were fortunate enough to have been associated with him will realize that death deprived them of one whose life made living easier for others, his readiness to do a friendly turn and his willingness to smooth out the pathway for others if he could was always in evidence. To have lived fifty-two years and to have filled a position in the world with honor and credit, and to have departed this life with the universal respect and sorrow of his acquaintances and friends, is an eloquent tribute which he earned. During Mr. Gray's business career he was connected with the firm of Hoopes Bros. & Darlington, of West Chester, and for the last two years with the Wm. S. Haines Co., of Philadelphia.



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SUPPOSE YOU SEND FOR ONE?

NO CHARGE

Joseph Dixon Crucible Co.

JERSEY CITY, N. J.

"Westinghouse Railway Motors" is the subject of an excellent and well edited catalogue just issued by the Publishing Department of the Westinghouse Electric & Mfg. Co., Pittsburg, Pa. The right hand pages are very generally devoted to illustrations of motors, large electric plants, etc., and the type matter is on the left hand pages.

The New York Blower Co., Bucyrus, O., has just issued and now has ready for distribution an exceptionally well printed and complete catalogue devoted to its many specialties. The catalogue is inclosed in a handsomely embossed cover in three colors and the text is printed on a fine quality of coated paper in two colors. Among the specialties described and illustrated are blowers, exhausters, engines, mechanical draught outfits, etc. The illustrations are numerous and add very much to the value of the catalogue. There are important tables of speed, together with much other valuable information of use to any engineer having to do with heating and ventilating. It is an exceptionally handsome catalogue.

As thermometers are coming to be very generally used on larger steam vessels, especially in the stacks, also on feed and steam pipes, feed tanks, hot water wells, etc., the catalogue on high grade thermometers and gauges manufactured by the Hohmann & Maurer Mfg. Co., Rochester, N. Y., will be of interest to many of our readers.

Eberhard Faber, 545 Pearl street, New York, issues a very complete catalogue, which will be found valuable for purposes of reference in draughting rooms and business offices, as it is devoted to the full line of lead pencils, penholders, erasers and other specialties of this firm. The catalogue is very handsomely printed with an index to the 100 pages.

The Chicago Pneumatic Tool Co., Monadnock Block, Chicago, is now distributing in this country the Exposition edition of its catalogue. It is a book of nearly 100 pages, 6 by 9 in. in size, and contains almost exclusively of full page pictures showing pneumatic tools of all kinds in actual operation in ship yards, on board ship and in engineering establishments. The text consists of a few words serving as titles to the pictures, being printed in English, French and German. The catalogue is an especially fine specimen of typographical work.

The Vezin high speed engine is illustrated and described in a compact catalogue just issued by the Vezin Machine Co., 97 Liberty street, New York. As stated in the introduction, this engine is designed especially for high speed work, varying from 1,500 revolutions down. An engine of over 5 H. P. is illustrated and described. It weighs 150 lbs., has a speed of 1,500 revolutions, is 23 in. high, occupies a space of 11 by 15 in. and a bedplate of 5 by 9 in. The construction of the engine is described and much useful information is given.

Induced draught is very thoroughly and exhaustively discussed from a commercial point of view in a handsome and complete catalogue, comprising 60 pages or more, with many folded insertions, issued by John Brown & Co., Ltd., Sheffield, England. The first part of the book is devoted to a discussion and consideration of the subject of mechanical draught. The latter part of the book is given up to engravings and plans of fans and engines and other apparatus as applied by this company. We suppose that duplicate copies of the book can be had upon application by referring to MARINE ENGINEERING.

Electric heaters have become so extensively used in steam yachts and passenger vessels that they have now become quite a necessity. These heaters are manufactured in large variety and suited to all peculiar conditions by the Gold Car Heating Co., Frankfort and Cliff streets, New York. This company is now distributing a catalogue which goes very thoroughly into the subject of electric heating and which contains many illustrations of heaters of different kinds, altogether making it a book of much merit and value to those who have to do with the heating of vessels of any kind where electric power is available.

WALWORTH MFG. CO., 130-136 Federal St., BOSTON

Specialty of **BRASS VALVES** and Fittings for MARINE CONSTRUCTION

Extra Heavy Valves, Bent Pipe and Fittings for High Pressure Work.

SOLE MANUFACTURERS OF

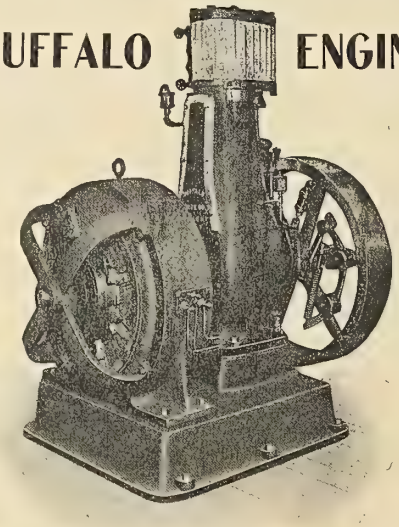
VAN STONE PIPE JOINT

Which does not Weep under heavy pressure.

SEND FOR CATALOGUE. Prices and Terms on Application.

N. Y. Office: Park Row Building.

BUFFALO ENGINES



Buffalo Single Vertical Engine
Direct Connected to Marine Type Generator

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New York Office
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Is durable, impervious, unchanging in color, firmly adherent. Combination paints based on zinc white have all these qualities.

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Require explanations and apologies. The addition of **Zinc White** obviates the necessity for either.

SENT FREE:
Our Practical Pamphlets,
"Paints in Architecture,"
"The Paint Question."

The New Jersey Zinc Co.
71 Broadway
NEW YORK

A most complete line of electric light and power specialties and signalling devices is shown in a catalogue issued by Zindars & Hunt, 52 Grove street, New York. This comprises switches of every description and suited to currents of various kinds, connecting lugs, switch board connections and instruments, complete switch boards and all of the attachments that go with them and other electric specialties.

Users of small air pumps and receivers for any purpose will be surprised at the great variety of applications shown in a catalogue issued by the Gleason-Peters Air Pump Company, Houston and Mercer streets, New York. The Power receivers are extensively used on board vessels for operating fog signals, whistles, etc., and smaller ones are shown in which fog signals are operated by hand and foot power. These are only a few of the numerous applications.

Users of paint will be interested to send for a booklet issued by the Theodore Saunders Company, 150 Nassau street, New York, descriptive of the different lines of paint manufactured by this company. Considerable space is devoted to describing Diamond Liquid Iron paint, Invincible paint for stacks, boiler fronts and for all parts of steamships. This paint is made in several colors. Other specialties referred to are boiler and tank paint, etc. Copies of the booklet can be had by mentioning MARINE ENGINEERING.

Pneumatic tools, hammers, riveters and drills, manufactured by the Cleveland Pneumatic Tool Company, Cleveland, O., are fully described and thoroughly illustrated in a catalogue just issued. It is printed on heavy coated paper and the illustrations are strong and very effective. As the illustrations are all of them of large size and show the tools in actual operation, the catalogue is made so much more valuable. Several pages are devoted to text, describing not only special tools, but the general use of pneumatic appliances.

Two catalogues have just come to hand from the B. S. Sturtevant Company, Jamaica Plain, Mass. One is the third edition of a catalogue devoted to steel plate fans. It is a large and very complete book containing valuable matter. The other is devoted to the Sturtevant system of heating, ventilating and moistening.

A 4-page folder is issued by the Naval Electric Company, 95 Liberty street, New York, describing the "Yale" lamp, a recent invention by which electricity can be utilized under water. Brief mention is also given of the other "Naval" specialties of this company, including generating sets, search lights, bunker lamps, electric winches, etc.

Hack saws and frames in considerable variety, which are manufactured by the L. S. Starritt Company, Athol, Mass., are illustrated and described in an 8-page folder. This company also issues other little folders, one devoted to nail sets and center punchers; another to fine tools for mechanics, and the third to speed indicators.

"About Yachts and the Best Machinery to Run Them" is the title of a catalogue just issued by John E. Thropp & Sons Company, Trenton, N. J. Pictures are given of different types of engines which this company manufactures, simple, compound and triple expansions, of high speed yachts, surface condensers, propellers, Boyer water tube boilers and other types.

Many marine specialties of much importance are manufactured by the Fuller Company, Detroit, Mich., and shown in a catalogue which is now ready for distribution. These include an automatic engine generator, the engine being of the Fuller pattern, which has only recently been put upon the market, air propellers, small yacht lighting sets, ventilating fans and blowers in considerable variety, switch boards and appliances, yacht engines and other specialties. The catalogue is one that should be in the hands of every man having to do with marine work.

BUSINESS NOTES.

MEXICAN GOVERNMENT WORK.—The Johnson Iron Works, Ltd., New Orleans, La., have been building for the Mexican Government a 60-ft. tug. The tug has a wooden hull, a water tube boiler, a Wheeler condensing equipment and a 3-cylinder triple expansion engine of the Company's own design and manufacture. The tug was launched early in November. According to a press dispatch, she was designed by Mr. Warren Johnson and is to make a speed of 12 knots.

NEW LUNKENHEIMER SHOP.—The new machine shop building which The Lunkenheimer Company has just completed is situated on the block bounded by Tremont, Waverly and Lawnway streets, Fairmount, Cincinnati. This building is 90 ft. wide by 170 ft. long, two stories and basement, and is built on the usual machine shop gallery style of construction. There is a traveling crane 30 ft. wide which runs the full length of the building, leaving galleries on the second floor, on both sides, 30 ft. wide. The construction is steel throughout and designed to safely carry a load of 300 lbs. per sq. ft. This building was erected for the purpose of taking care of three important departments of the company, viz: Iron valve, injector and safety valve. It is a model machine shop and is equipped throughout with the very latest tools and appliances. The steam plant consists of a 125-H. P. water tube boiler built for a safe working pressure of 400 lbs. per sq. in. In connection with this boiler there are a number of appliances for testing all goods under steam, air and hydraulic pressure. The building is lighted by electricity and the power is furnished by a 100-H. P. engine. The exterior of the building presents a very handsome appearance, being pressed brick throughout. The location is an excellent one for manufacturing, railroad facilities are ample and a track spur from the C. H. & D. railroad leads to one side of the building. The erection of this building will not in any way reduce the building now occupied by the Company on East Eighth street, Cincinnati, which will hereafter be entirely devoted to brass work. The Company contemplates the erection of a large building on some other property which it owns, which is adjacent to the new building, but it is not likely that this will be carried out for another year. By the erection of this new building the manufacturing facilities have been increased about 25 per cent, and employment is given to one hundred men in addition to the force already operated, bringing the total force up to five hundred hands.

East Boston, Mass.
I made a run from Boston to Havana, back to Newport News, back to Havana and returned to Newport News with only one turn to follow up on the H. P. rod. I know of no other packing that will give as good results as Eureka.
E. M. Barber
Chief Eng.r

The GENUINE has this label in RED on every box and on every 100 feet of pckg: all first class dealers carry it.

IF YOU NEED { AN INDICATOR, REDUCING WHEEL OR PLANIMETER WRITE US
JAS. L. ROBERTSON & SONS
218 FULTON ST NEW YORK.

KINGSFORD MARINE APPARATUS.—The Kingsford Foundry and Machine Works, Oswego, N. Y., have entirely rebuilt their plant since the recent fire and added much new machinery and otherwise increased their facilities. This Company is now offering a line of marine engines up to and including 15 and 30 by 28 in. The Company builds a very complete line of side suction pumps and three types of double suction pumps in all sizes. These pumps have been designed for low, medium and high lifts and can be driven by belts, direct connected engines or motors. In marine boilers the Company is doing a very large business in internally fired boilers of the Scotch, leg and patent "Eclipse" type.

Westinghouse
Electrical Apparatus
Operates Everywhere
All Principal Cities in U. S. and Canada.
Westinghouse Electric
& Manufacturing Co., Pittsburg, Pa.
61-F.

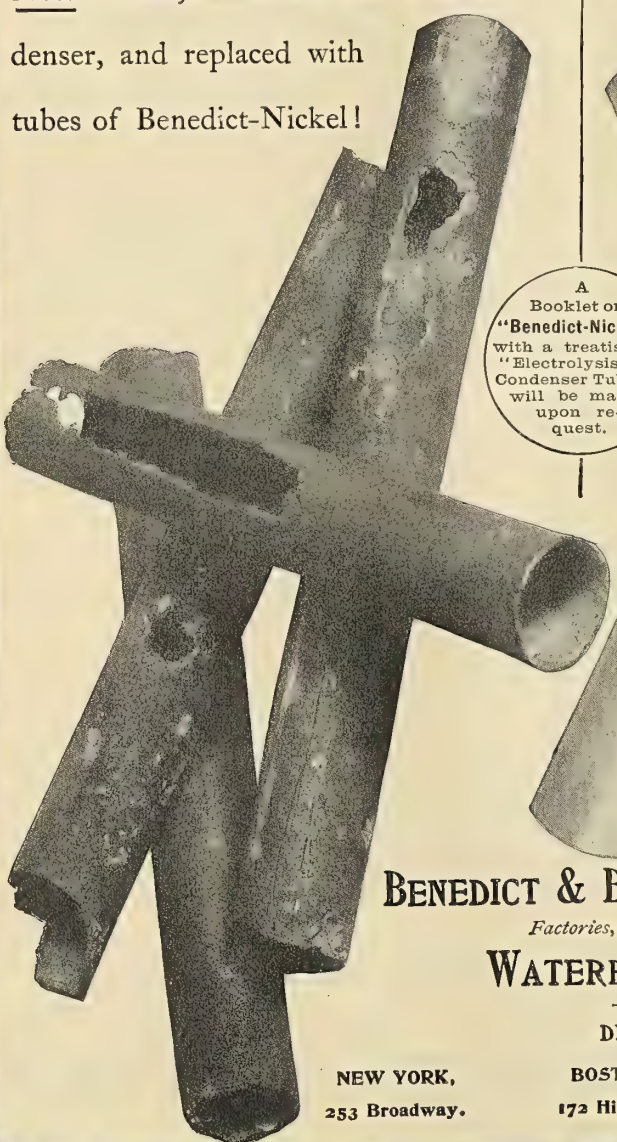
VENTILATION.—The contract for ventilating the remodelled Grand Central Station, in New York, was awarded to the Sprague Electric Company, 527 West Thirty-fourth street, New York. The order called for a large number of fans, ranging in size from 18 to 60 in., all of them operated by Lundell motors.

THE PARAGON BOILER.—Captain M. De Puy, 19 South street, New York, inventor and manufacturer of the Paragon boiler, informs us that he is now building two 150-H. P. boilers for marine service, each to carry a pressure of 150 lbs. He also has several other orders, one for four 250-H. P. boilers, another order for two 250-H. P. boilers. A recent improvement in this boiler consists in running the water space in the centre legs up through the combustion chamber. This adds 14 sq. ft. of heating surface. This improvement also simplifies the construction of the boiler. Another change in the boiler is the use of the water bridge in both furnaces, thereby increasing the effective heating surface.

CORRESPONDENCE INSTRUCTION.—Ambitious mechanics who desire to obtain better positions and higher wages should investigate the Free Scholarship offer made in another column by the American School of Correspondence, Boston, Mass. Situated in a large city which is a recognized educational and industrial center, this well-known correspondence school has many natural advantages in teaching the theory of the trades and engineering professions. Without leaving home or losing time from work, the student pursues a thorough course of study under the direction of able instructors, who are always ready and willing to assist him. Instruction papers, prepared especially for teaching by mail, are furnished free. These papers, written in clear and concise language, are as free as possible from technicalities. In addition, special information regarding any difficulties in their studies is furnished students without extra charge.

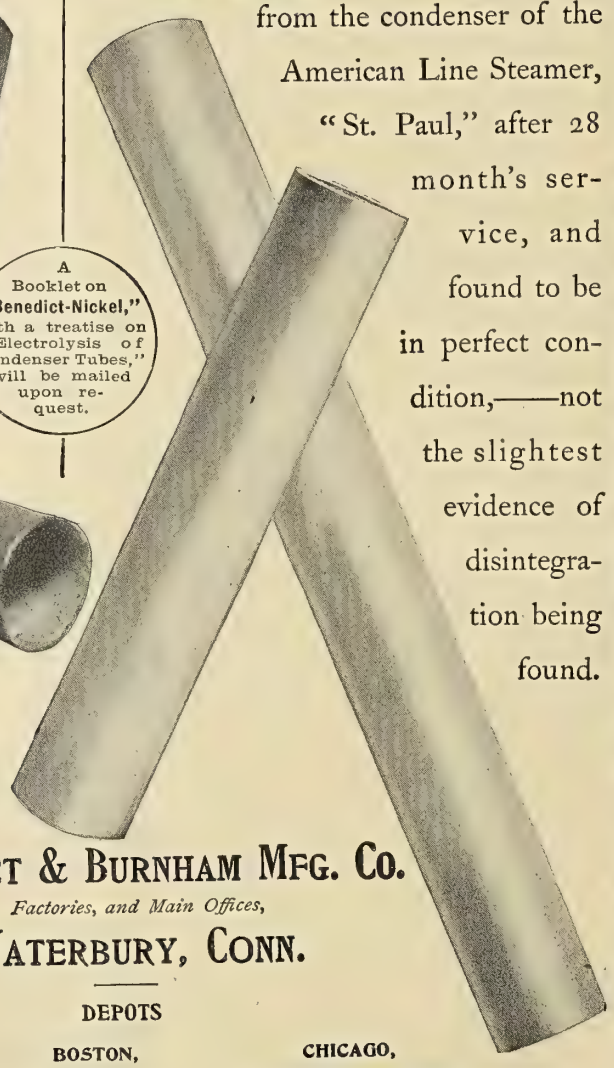
The Effect of Electrolysis

Brass Tubes,——taken from a condenser, and replaced with tubes of Benedict-Nickel!



A Booklet on "Benedict-Nickel," with a treatise on "Electrolysis of Condenser Tubes," will be mailed upon request.

"Benedict-Nickel" Tubes,——taken from the condenser of the American Line Steamer, "St. Paul," after 28 month's service, and found to be in perfect condition,——not the slightest evidence of disintegration being found.



BENEDICT & BURNHAM MFG. CO.

Factories, and Main Offices,

WATERBURY, CONN.

DEPOTS

NEW YORK, 253 Broadway. BOSTON, 172 High St. CHICAGO, Cor. Lake & Clark Sts.

V. WARING N.Y.

BENT GROOVING CHISEL.—We are informed by the Mound Tool & Scraper Company, 710 Howard street, St. Louis, Mo., that it is sending free with every order of goods, of whatever size, from the readers of MARINE ENGINEERING, a Bent grooving chisel for cutting oil ways in engine brasses and bearings.

NEW YORK BLOWER COMPANY.—Owing to the great increase in its business, the New York Blower Company, whose head office and factories are at Bucyrus, O., has found it necessary to open a branch office in Chicago, in the Merchants' Loan and Trust Building. The Company now has offices in New York, Boston and Chicago.

LINE CARRYING GUNS.—Wm. Read & Sons, 107 Washington street, Boston, Mass., are offering the Lyle line carrying gun, which is made in accordance with government regulations and which is already used very extensively on seagoing vessels of all sizes. Circulars and other information regarding the guns can be had upon application.

PEERLESS RUBBER GOODS.—The Peerless Rubber Manufacturing Company, 16 Warren street, New York, has made Mr. Leonard J. Lomasney its general sales agent. This is a promotion and a compliment to Mr. Lomasney, as he has been connected with the company for several years in the sales department. The recent increase in trade has made it necessary to extend the scope of this department.

TEA AND COFFEE URNS.—Nearly every vessel of any size has on board tea or coffee urns of greater or less capacity. The demand for these specialties has been such that A. G. Miller, 106 Centre street, New York, is putting on the market a line of improved urns designed especially for ship uses. These have already been introduced on transatlantic and coastwise vessels. A very complete catalogue, illustrating the various sizes and types of urns, together with other specialties, is sent upon application.

SEMI-BRONZE METALLIC PACKING.—The Charleston Metallic Packing Company, Charleston, S. C., reports a steady increase in the sale of its semi-bronze packing. A large order has just been delivered to the U. S. Government for the Brooklyn Navy Yard. The Company has found it necessary to increase its plant and is now offering, in addition to the bronze packing, a line of flax and plumbago packings. Arrangements have been made to have the packings handled in foreign countries, even in Russia, Siberia and Bulgaria.

A MAIDEN TRIP.—The small steamer *Lady Jane* has just been delivered by the Marine Iron Works, Chicago, Ill., under her own steam to the Hand Lumber Co., Mobile Bay, Ala. She made the 2,000-mile trip from Chicago in a manner that was very pleasing to all concerned, both from an enjoyable as well as economical and practical standpoint, the route being via Chicago River and canal to the Illinois River, thence via the Mississippi. Any who may contemplate making that very interesting trip, either all or part way, can secure information regarding it by addressing Marine Iron Works, Station A. Chicago, Ill.

....THE....

HEINTZ STEAM SAVER

Has unique points that adapt it for

MARINE SERVICE

It does perfect work for others. It is guaranteed to do yours. We will prove this and tell you all about it for the asking.....

WILLIAM S. HAINES CO.

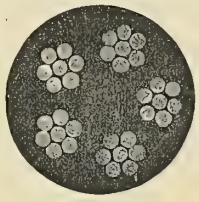
136 South 4th Street

PHILADELPHIA

Durable Wire Rope.

WATERPROOF and RUSTPROOF.

Combines all the good qualities of Manila and Wire rope. Will outwear both.



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ADDRESS

The Durable Wire Rope Co., 288 Congress Street, BOSTON, MASS.

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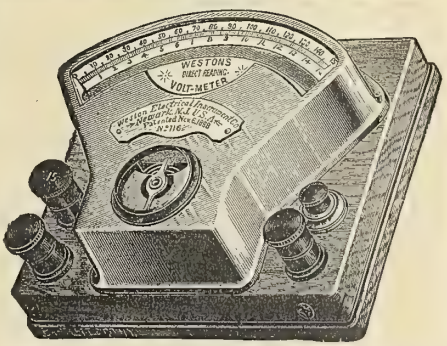
Voltmeters, Ammeters, Millivoltmeters, Voltammeters, Milliammeters, Ohmmeters, Portable Galvanometers, Ground Detectors and Circuit Testers.

Our Portable Instruments are recognized as **the standard** the world over. Our **Voltmeters** and **Ammeters** are unsurpassed in point of extreme accuracy and lowest consumption of energy.

WESTON ELECTRICAL INSTRUMENT CO.,

114-120 William Street, Newark, N. J., U. S. A.

BERLIN:—European Western Electrical Instrument Co., Ritterstrasse 88.
LONDON:—Elliott Bros., 101 St. Martin's Lane.



WESTON Standard Portable Direct Reading Voltmeter.

BETHLEHEM STEEL COMPANY.—The Bethlehem Steel Company, 100 Broadway, New York, has appointed the Abner-Doble Company, Fremont and Howard streets, San Francisco, Cal., agents on the Pacific coast for Bethlehem forgings and other specialties.

BABBITT METAL.—The Columbia Smelting and Refining Works, 307 Water street, New York, make a specialty of Babbitt and other metals for bearings. The company has a large establishment devoted exclusively to this business, and information regarding the different grades of metal will be furnished upon application.

BALL BEARING JACKS.—There is a steadily increasing demand in marine work for jacks, and in order to fully satisfy the demand A. O. Norton, 167 Oliver street, Boston, Mass., is making, especially for marine work, a line of ball bearing ratchet screw jacks. These jacks are designed to be as safe, as light in weight and as durable and as low in price as possible. For their size they have great capacity.

FOUR THROW ENGINE CRANKS.—The William S. Sizer Steam Forge Co., Buffalo, N. Y., has recently received and filled an order from the Holland Torpedo Boat Co. for the seven four throw crank shafts which are to be used in the submarine torpedo boats lately contracted for by the Government. These cranks are made of open hearth steel specially rolled for the purpose and are finished complete. Each shaft in its finished condition weighs 1,460 lbs.

A NEW REPAIR PLANT.—Mr. C. C. Hanley, who has for some time been in the yacht building business at Quincy Point, Mass., has combined his plant with the docking and repair works of L. D. Baker. The new company will be known as the Hanley Construction Co. and the capitalization is $250,000. It is understood that the company will build dry docks and be prepared to do extensive repairing on steam vessels as well as the building and repairing of yachts.

STURTEVANT APPARATUS.—"2500 Witnesses" is the suggestive title of a 58 page production of the advertising department of the B. F. Sturtevant Co., Jamaica Plains, Mass. As announced in the subtitle, it is "A List of Buildings and Sundry Steamships Wherein the Sturtevant System or Apparatus Has Been Installed for the Purposes of Ventilation and Heating." The introduction contains this statement: "Some evidence is usually demanded by the prospective purchaser as to the extent and success of the application of the article or system under consideration. Printed testimonials, no matter what their tenor, are always more or less questionable as to their character. But a comprehensive list of purchasers and users, to each and every one of whom the inquirer is at perfect liberty to apply for information, forcibly presents, by its very numbers, the most indisputable evidence of widespread adoption and provides the best possible opportunity for searching inquiry as to success. Such is the list which follows. These names are the most emphatic witnesses that this Company desires to present as evidence of the successful operation of the Sturtevant system and apparatus.

SPECIAL NOTICES.

Announcements under this heading will be inserted at the uniform rate of thirty-three-and-a-third cents a line. Lines average ten words each.

SECOND HAND YACHT ENGINE WANTED.

Second hand yacht engine wanted, 100 to 150 H.P. Address, with full information, Box 52, Houghton, Wash.

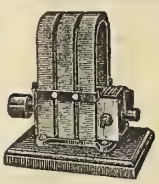
AGENCY FOR MARINE SPECIALTIES.

WANTED:—San Francisco, Cal., agency for Marine Specialties, by an experienced salesman and mechanical engineer. Address "CORNELL," General Delivery, San Francisco, Cal.

"HAWKINS' EDUCATIONAL WORKS."

A complete engineers' library for reference and home study; treating on steam and electrical engineering. Supplied to the patrons of MARINE ENGINEERING ***on easy monthly terms of payment.*** Send postal card for particulars.

THEO. AUDEL & CO., Publishers, 63 Fifth Ave., New York City.



OUR PERMANENT MAGNET DYNAMO
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to ignite the charges in
GAS AND GASOLINE ENGINES.
Special styles for Launches and Automobiles
Send for descriptive pamphlet M. E.
THE HOLTZER-CABOT ELECTRIC CO.
Boston (Brookline), Mass.

A SATISFACTORY LAUNCH.—In writing recently to the Marine Engine and Machine Co., Harrison, N. J., regarding a launch which he recently purchased from this company, Mr. Lawrence Jones, of Louisville, Ky., stated: "I have used four different types of launches, or rather engines, hot tube, electric spark, the regular naphtha and the alcho-vapor. There is no possible comparison. The alcho-vapor is infinitely superior to anything I have ever tried; in fact, in my judgment, it is the only power for a small boat. My launch last year ran over 7,000 miles without a skip of any kind. She never stopped once on account of the engine. It is positively a pleasure to endorse your engine."

INCREASED FACILITIES.—The Voorhees Rubber Mfg. Co., Jersey City, N. J., has constructed a large addition to its works, which will give a much greater manufacturing capacity and enable it to turn out orders promptly. The new building is 50 by 150 ft., constructed of brick, four stories in height, and has all the improved modern mill construction. The building is equipped with the latest improved machinery, including new engines, hydraulic presses, etc. With this addition to its facilities the company will have double its former capacity. The company will now be prepared to fill promptly orders of any size for Nubian Packing, together with its other specialties, such as hose, valves and other rubber goods.

Ship Building Plant For Rent.

The property has ample water front, and forty feet of water.

Plant already built and equipped with necessary machinery of building steel hulls, and with good machine and blacksmith shops.

Situated within 25 miles of New York City.

A rare opportunity. For particulars, address:

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